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UNIVERSAL MEDICAL SCIENCES

A YEARLY REPORT OF THE PROGRESS OF THE GENERAL
SANITARY SCIENCES THROUGHOUT THE WORLD.

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AND

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DISEASES OF THE BRAIN.

By LANDON CARTER GRAY, M.D.,

NEW YORK.

CEREBRAL LOCALIZATION.

SCARCELY a single new fact, in the domain of cerebral localization proper, is reflected in the literature of neurological medicine for the past twelve months. Some new evidence has been adduced confirmatory of the generally accepted facts, but the value of this evidence is in many instances largely problematical, and relatively unimportant. Becliterew and M. Slawski⁷⁵_{No.1} have demonstrated experimentally, upon dogs and rabbits, the existence of a centre for movements of the vagina, located in the anterior margin of the motor region (presumably in the trunk field) in rabbits, and in the sigmoid gyrus in dogs. The movements are those of excitation and inhibition,—functions which are experimentally separable, but quite closely related topographically. A very fair *résumé* of the present status of the subject of cerebral localization is given in a paper by L. Harrison Mettler.⁵⁹_{Aug.27} A paper absolutely revolutionary and without any basis whatever, except the *ipse dixit* of the writer, is contributed by Eugene Dupuy, of Paris.⁴⁷_{Summer No.} The author's peculiar teaching, as expressed in this paper, which was read before the London Neurological Society, is that the brain-cortex is endowed with functions neither motor nor sensory, but simply "potential matter" (*sic!*) expressing potentiality only through the stimulation of peripheral-nerve impulses. The dignity of the medical body addressed is the only justification for a reference to such doctrine, even in condemnation.

F. W. Jollye⁶_{Nov.14,'91} calls attention to the clinical and surgical importance attaching to the fact that lesions of the prefrontal lobes may cause motor symptoms limited to the same side. Cases of this character have been reported by Watson Cheyne, Tansini, of Modena, and others. Tansini's case was one of epilepsy due to trauma, the initial movements being upon the same side as the

scar. Accepting the explanation of Bruin, that the fibres of the corona radiata began in the prefrontal lobes, undergoing, subsequently, a double decussation, the scar was selected as the site of operation, with the result that a perfect cure was effected by removal of the lesion. Unfortunately, there is no physiological method of differentiation in such cases. David Ferrier, ³⁶_{Apr.} in the Cameron Lecture for 1892, takes, as his subject, "Cerebral Localization in relation to Therapeutics," the surgical aspects being chiefly considered.

Cerebral Anatomy.—The minute anatomy and correlated physiology of the brain is a field which seems to have been quite actively investigated within the past year. A comparative enumeration of the cerebral fibres which are in relation to movements in the superior and inferior extremities has been made by Paul Blocq and Onanoff. ⁹²⁰_{July 25} The estimate is based on hæmorrhagic cases, with descending degeneration. According to their estimate, the superior members receive about three times as many fibres of cerebral origin as the inferior. Taking into consideration the muscular mass of the two extremities, the difference is about five to one. This is believed by Blocq and Onanoff to explain the less-marked reflexes of the upper extremities, because of the greater influence of the brain, and also from the fact that in cerebral hemiplegia the upper extremity is usually most affected and slowest to recover. Bechterew ⁷⁵_{No. 10} re-affirms his former opinion that the strie medullares, or striæ acousticiæ, are not in relation to the auditory nerve, but that they arise in the white substance of the cerebellum, close to the flocculus, and serve as commissural fibres for the basal portion of the cerebellum, emerging from the cortex of the convolution of the flocculus. The fibres first follow the inner basal surface of the flocculus, ascending on the margin of the cerebellum, which surrounds the restiform body, and then reach the lateral margin of the fourth ventricle.

Darkschewitz and Pribitnoff, ²⁴_{Apr.} writing of the systems of fibres on the floor of the third ventricle, with three pathological cases as a basis, recognize (1) the crossing of the optic fibres; (2) the commissure of Gudden; (3) the commissure of Meynert (which they find consists of two systems of fibres of entirely different origin); (4) a system described by Forel, called by Darkschewitz the decussation of Forel. The origin and tracts of the cerebellar

peduncles, and their relations to the other nerve-centres, constitute the subject of two monographs,—one by Luciani, the other by Vittoria Marchi.⁴⁷ Summer No. Luciani's conclusions are based upon numerous experiments upon dogs and monkeys, with observations during life, the animals being placed at the disposal of Marchi after death, the deductions of the latter being founded upon the secondary degenerative changes observed. Luciani's method of operation for partial and complete extirpation of the cerebellum seems to have been remarkably successful, and the technique is given with commendable clearness. In the investigations of the degenerative changes, the author's (Marchi's) own method was used, viz., to stain the degenerated tissues black by the osmium-bichromate process. Luciani's conclusions, while not especially novel, are both interesting and valuable. He finds the cerebellum to be an organ of bilateral function, but with mostly a direct action, differing from the cerebral hemispheres, which are also bilateral in function, but with an action mainly crossed. The middle lobe he finds of no greater functional importance than the lateral lobes. The different portions of the cerebellum have the same function,—that of a relatively independent re-inforcing organ to the whole cerebro-spinal system, with a demonstrable sthenic, tonic, static, and trophic action. The joint conclusions of Luciani and Marchi are as follow: 1. The superior cerebellar peduncles do not completely decussate, a small band of fibres passing to the optic thalamus on the same side, the principal mass terminating in the red nucleus of the opposite side. 2. The middle cerebellar peduncles are not merely commissural strands from one hemisphere to the other. Many of the fibres enter the pyramidal bundles and end in the gray matter of the same side, while others pass to the gray matter of the opposite side. 3. The inferior cerebellar peduncles send a tract of fibres to the opposite olivary body. They are, in all likelihood, formed of afferent and efferent fibres. 4. The posterior longitudinal bundles and the fillet arise from a common origin in the middle lobe of the cerebellum. They course with the middle peduncles and come into relation with the nuclei of the cranial nerves, the nuclei pontis, the corpora quadrigemina, and probably, also, the corpus striatum. At the level of the olive the posterior longitudinal bundles fuse with the fillet, and thus form a connection with the antero-lateral regions and the anterior

horns of the spinal cord. 5. The cranial nerves are closely related to the cerebellum through the medium of the fillet and the posterior longitudinal bundles. 6. The origin of the three peduncles is diffused over the cerebellum, but the nucleus dentatus, particularly, furnishes most of the fibres of the superior, the middle lobe of the middle peduncles.

Borgherini and Gallerant¹⁷_{July 5} have also been studying the functions of the cerebellum, and announce conclusions closely in accordance with those of Luciani and Marchi, as follows: The cerebellum is the organ essential to co-ordination of muscular movement; all lesions sufficiently deep cause ataxia of locomotion; a superficial lesion gives, as a constant and permanent result, trembling of the head and neck. Lesions of the cerebellum also cause trophic changes, but are not accompanied by modifications of the muscular force or alterations of sensibility, general or specific. The character of the ataxia produced by cerebellar disease resembles that of spinal ataxia in man. Vejnar⁸⁶⁸_{July 16} has repeated the experiments of Spina regarding the mobility of the amorphous structure ("neuroglie") of the brain in the frog and the triton. These movements are increased by feeble electric currents. The amœboid movement of the "cellule neuroglie" seemed not to be transmitted to the central protoplasm. Browing, of Brooklyn,²⁴²_{Nov., '91} in a paper read before the Association of American Anatomists, discusses the arrangement of the supra-cerebral veins in man, in its relation to Hill's theory of a developmental rotation of the brain. Kalisko¹¹³_{No. 31} has been studying the anatomy of the cerebral circulation, especially the "end arteries." His researches tend to confirm the well-known teachings of Meynert as to the significance of the arterial arrangement in the region of the internal capsule, in connection with hemiplegia and hemianæsthesia.

Common Sensations.—Savill, of London,⁴⁷_{Pt. 205, '91} reports a case with autopsy, in which absolute loss of tactile perception, with trophic changes, occurred as a result of lesion (hæmorrhagic) limited to the gyrus fornicatus and part of the marginal convolution of the opposite side. The symptoms, with the post-mortem findings, are given in detail, and the case is somewhat confirmatory, from a clinico-pathological stand-point, of the laboratory experiments of Horsley and Shafer and Yeo, who consider the limbic lobe the seat of tactile and pain perception. Mann⁴_{No. 11, '91} relates the history of a

patient affected with extreme vertigo and a tendency to fall, diplopia, paralysis of right vocal cord, deflection of uvula, diminution on the right side of touch, pain and temperature perception, with *constant and severe pain* in the *right side* of the face and *left side* of the body, this pain being due, in the writer's opinion, to an irritation of the sensory fibres passing through the medulla, by a lesion (focus of softening) situated in the right side of the medulla, at a level with the fibres of the spinal accessory. The patient was still living at the time of the report. Mills calls attention to a clinical phenomenon, frequently observed by him, in an irregular and paradoxical distribution of anaesthesia of the face in both organic and functional cases.

M. Weiss¹¹³_{Nos. 46, 48} contributes a most interesting paper upon allochiria, a term first introduced by Obersteiner to describe a condition in which motor and sensory peripheral impulses and impressions are falsely interpreted centrally. Weiss collected eleven cases, to which he adds one of his own, a tabetic woman. The condition is characteristic of no special condition, Brown-Séquard (1863) having found it in lateral trauma of the cord, Obersteiner in myelitis, Huber in multiple sclerosis, Obersteiner and Féré in hysteria, Féré in traumatic hemiplegia, Gellé in Ménière's disease, and Obersteiner, Fischer, and Weiss in tabes. Explanatory theories are quoted, but the author considers none of them as satisfactory. The condition may involve not only common sensation and motion, but any or all of the special senses may be affected, cases of optic. auditory, and gustatory allochiria having been severally recorded. Weiss, in a case of gangrene, observed an electro-motor allochiria. G. J. Preston²⁴²_{Aug.} relates the clinical history of a patient in whom, as the result of a lesion of the anterior internal capsule, also partially involving the posterior limb, there was hemiplegia with absolute loss of the posture sense, but with pain and tactile perception unaffected.

An instrument described as a "topothermoaesthesiometer" has been invented by Noiszeoski.⁹⁴_{Sept.} It consists of a piece of ivory armed with fine platinum points, separated at distances of from one to two millimetres or more. The number of points can be determined by a healthy person if separated more than two-tenths of a degree, as a rule. Highly sensitive tactile surfaces, as the fingertips and glabella, are equally quick to distinguish the thermometric impressions.

The Reflexes.—Although belonging within the domain of spinal affections rather than to the brain proper, the significance of changes in many of the reflexes is of so much importance, in disease of the latter organ, that a reference to certain new facts germane to the subject is not inappropriate in this department. Gellé³⁷_{May} describes an “otic sign” or reflex demonstrated in the loss of synergic binauricular accommodation. Loss of this otic sign is believed by him to indicate disease in a co-ordinating centre located in the protuberance of the medulla. Clinical examples confirmatory of the author’s views are quoted *in extenso*. Hughlings-Jackson²_{Feb.13} has observed a loss of the knee-jerks in conditions of cerebral super-venosity,—a fact which, he remarks, may be of importance in connection with apoplectic states in which the knee-jerks are sometimes present, sometimes lost. Hughes⁹⁸_{Jan.} makes a further contribution upon the clinical significance of the virile reflex. He has found it unaffected in hemiplegia, exaggerated in cerebral paraplegia, and lost in cerebral sclerosis (syphilis) and multiple sclerosis. Blocq and Onanoff¹⁴_{May 18} describe what they have termed a bulbo-cavernous reflex elicited by pressing the index finger against the bulbar portion of the scrotum, while the testicle is seized between the thumb and index finger of the other hand, and suddenly made to slip between them, when contraction of the bulbo-cavernous muscle occurs. The clinical significance of this reflex is not stated. Geigel⁶⁹_{No.8} describes an “oblique reflex” elicited in an action of the internal oblique, a reflex clinically and anatomically identical in the female with the cremasteric reflex in the male. This reflex was present in 87 of 100 women tested, doubtful in 7, present on one side in 2, and absent entirely in only 4 cases. In 100 men free from nervous disease, Geigel found that of the skin reflexes the abdominal was most constant, occurring in 99, the plantar in 98, the cremasteric in only 66. The gluteal, scapular, and intercostal reflexes were so rarely found as to lead the author to conclude that they were clinically useless. The patellar reflex was present in 98. In women the reflexes were all notably less constant. Ranvier⁷³_{Apr.9} states that when the nerve-filaments which accompany the median artery of a rabbit’s ear are compressed, vaso-dilatation is observed beyond the point compressed; while in the opposite ear there is marked contraction of the arteries, constituting a vascular reflex. Sherrington²_{Mar.12} adds

further confirmation to his former experimental demonstration of the fact that the knee-jerks depend upon the integrity of the vastus externus and crureus, so far as the muscular apparatus is concerned, and that section of the posterior root of the fifth lumbar alone suffices to abolish the jerk completely. Other papers upon the reflexes (chiefly *résumés*) are by Jamieson, ²⁸⁵_{Nov. 15, '91} Ferguson, ¹¹⁷_{Sept.} Rosenbach, ⁶⁸_{July} and Krauss, ¹⁷⁰_{Oct.}

Cranio-Cerebral Topography.—Papers upon this subject are by Penta and Bianchi, ⁶⁸⁶_{Nov., '91} Bullen, ²⁴²_{Jan.} and W. C. Krauss, ²⁴²_{Dec., '91} the last of whom has designed a neuro-topographical bust, which, as described, should prove of great assistance in cerebral surgery.

APHASIA AND ALLIED STATES.

John Wyllie, ³⁶_{Jan.-May} in a series of papers upon disorders of speech, considers the subject from the stand-point of normal and deranged development. The first paper contains a most interesting "sketch from life," of the development of normal speech in children, beginning with inarticulate sounds, as crying, laughing, and grunting, passing thence, through the stage of language in facial expression and gesture, to babbling and crowing, mimic reading and echolalia, or "parrot-talk," and, finally, to intelligent speech. The second paper, in its first half, deals with the functions of the voice, which, the author states, are: (1) an exercise for the lungs and respiratory muscles; (2) a means of expressing emotions, as in crying, laughing, screaming, groaning, and sobbing, and in modulations and pitch in public speakers and singers; (3) acting with oral articulation, it forms words, and thus becomes the instrument of thought. The second half of this paper relates to the peculiar speech of imbeciles and idiots. The conclusions of the author on this subject are: (1) that lalling is the chief defect in the speech of imbeciles; (2) that stammering is occasionally associated with it; (3) that, in the lower grades of imbecility, babbling, grunting, echolalia, and the use of words of their own invention are met with, in association with conditions of mental development closely corresponding to the conditions with which they are associated in the development of normal children. In the succeeding paper the subjects of dumbness, or congenital aphasia, deaf-mutism, imperfect speech, dependent upon oral deformities and defects of the vocal mechanism, with an explanation of the phe-

nomena of bradylalia (abnormal slowness of the speech) and logorrhœa (the opposite condition), are considered. The author next takes up speech development from a racial or philological stand-point, in a paper full of scholarly merit, but of less direct interest to the neurologist except in the metaphysical bearings of the subject. The series represents a classically exhaustive presentation of the subject, masterly, and worthy of close study.

Paul Rangé¹⁴_{June 29} contributes a philosophical paper upon the psycho-motor centres for articulate speech, based largely upon theoretic considerations, and possessing little practical value or novelty in ideas.

Marcel Baudouin³_{Feb. 17} gives an account of an interview with the mathematical prodigy, Inaudi, who, he says, is not simply a calculating machine, but possesses also a broad intellectuality, with a head above the average in size, and with an unusually prominent forehead. His eyes are oriental in type, a fact which was true of Zerah Colburn, another mathematical prodigy.

Amnesia and Amnesic Aphasia.—Rouillard,¹⁰⁰_{May 7} writing of amnesia, or loss of memory, makes the following divisions: (1) congenital; (2) traumatic; (3) amnesia connected with disease of the brain and its envelopes; (4) amnesia connected with the grand neuroses (epilepsy, somnambulism, etc.); (5) amnesia following acute maladies and depressing and debilitating influences; (6) toxic amnesia (alcohol, lead, etc.). Regarding the last type, he makes the valuable suggestion that, where open fires are used without sufficient draught, carbonic asphyxia is common, and children of families who use this means of heating their rooms show defective memory. A case illustrating the effect upon memory of carbonic asphyxiation is reported by Fallot.³_{Mar. 9} The patient had attempted suicide with charcoal-fumes. After recovery, the memory was markedly affected not only for events subsequent to the poisoning, but extending back over a period three days prior thereto (retrograde amnesia). The writer calls attention to the fact that retrograde amnesia, in similar and in other cases, often has an important medico-legal significance. As if to emphasize the latter point, Eskridge⁹⁸_{July} relates the history of a patient who has a suit pending, involving \$200,000, which suit had its origin in the presence of this condition in the patient. The amnesia which existed in this case is said to have extended over a period of

twenty years. A full analytical *résumé* of the literature of the subject is given in the paper.

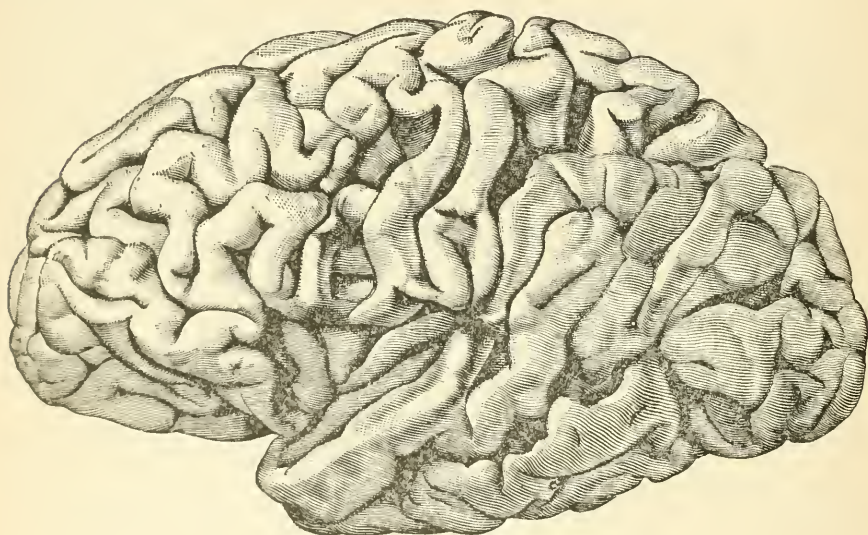
Charcot ^{212 94}_{Mar.10; July} describes an unusually interesting case of amnesia occurring in a woman, 34 years old, of miserably neurotic ancestry. It originated in a severe mental shock, which threw her immediately into a state of hysterical delirium. When she recovered from this state, she was found to have lost all memory for events subsequent to the shock, and also for a period of six weeks previous thereto. The shock occurred August 28th, and her retrograde amnesia extended back to July 14th, at 10 p.m. exactly. Of her life previous to July 14th at the hour specified, she had recollections as complete as ever. Soon after coming under observation, it was noticed that she did not remember events occurring around her for more than a minute—that she had constant amnesia for the present, or, as Charcot terms it, anterogressive amnesia. From her talk during sleep and from observation during hypnotism, it was learned that there was a mental registry going on, evidencing a second latent self, with knowledge not present during normal consciousness. These acts led Charcot to consider the case as probably hysterical, although the ordinary stigmata were not present. The patient's condition remained unchanged for some time, but was finally altered for the better by repeated hypnotic suggestion.

Motor Aphasia. — Thomas ²³⁹_{Mar.1} relates the histories of two patients, both adult males, affected with absolute motor aphasia, due in both instances to traumatic injury to the convolution of Broca. This fact was determined by autopsy in one case only, but in the other the injury (a fracture of the skull) was exactly over the location of the third left frontal convolution.

Suckling ²_{May 21} exhibited before the Midland Medical Society a girl, aged 10 years, who had complete aphemic aphasia from embolism. Knoblauch ²⁴²_{June} reports a case similar, with the exception that, while absolutely wordless as regarded spontaneous speech, the child could articulate in singing. Ransohoff ⁵³_{Apr.16} reports a case of aphasia with right facial paralysis and Jacksonian epilepsy of the right side, the result of an injury to the head, located over the base of the right parietal bone. The patient recovered in a few weeks. Ransohoff's explanation is that the symptoms were due to contusion of the left speech- and face- centres, from counter-stroke.

Gilbert Ballet and Emile Boix ⁹⁴_{Sept.} report a case of pure motor aphasia, the autopsy showing a circumscribed lesion of the third left frontal convolution. There was, immediately after the seizure, transient word-blindness, but it passed off quickly, leaving the patient without paralysis of motion or sensation in the face or extremities, but with slight mental weakness and motor aphasia alone. (See *ent.*)

A quite remarkable instance of recovery from complete motor aphasia, which had existed for eight years, is reported by Dobie. ⁶_{Jan. 9} The patient, a married woman aged 56, was suddenly rendered



MOTOR APHASIA.
(*Archives de Neurologie.*)

absolutely speechless, without paralysis, in January, 1883. She also had agraphia, but no word-blindness, as she could read quietly to herself. Her total vocabulary for eight years was "ta ta" and "tut tut," sounds used without any relevancy and having no intelligent significance. During this time she communicated with others through gestures and signs altogether. On October 31, 1892, while laboring under intense excitement through a fit of anger with her daughter, she felt a sudden and severe pain in her head, and she found she could speak well,—a condition which has remained, to "the terror and consternation," as the reporter expresses it, "of her husband and family." A case of aphasia and right hemi-

plegia, with temporary conjugate deviation of the eyes, excited by attempts to converge the eyes strongly toward the middle line, is reported by Delépine.²_{Sept.10} The phenomenon of conjugate deviation, as demonstrated at the autopsy, was due to irritative implication, without destruction, of the region shown experimentally, by Ferrier, Horsley, Beever, Shafer, and Mott, to be related as a centre to these movements. The excitation of these movements by voluntary impulses was identical in results with excitation by electrical stimulus.

Word-Blindness or Alexia.—There is a constantly accumulating mass of evidence establishing the fact that the seat of visual images is represented in the occipito-angular region. At a session of the Paris Biological Society, Richet presented a dog which had been mutilated by ablation of the cortex of the pli courbe (angular gyrus). There was permanent ablation of the mental representation of objects. At a later meeting of the same society Sérieux⁶⁸⁵_{Mar.} reported a case of word-blindness with agraphia, which was found at the autopsy to be due to a focus of softening as large as a five-franc piece, occupying the whole of the inferior parietal lobe. The patient exhibited during life neither motor aphasia nor word-deafness, as might have been expected from the fact that neither the frontal nor temporal convolutions were implicated in the lesion. Déjerine,³_{Jan.29} in the discussion which followed, remarked that Sérieux's case was exactly like the one he had reported last year (see ANNUAL), in which word-blindness with total agraphia had been present, due to a lesion exactly localized in the pli courbe. There are now two forms of word-blindness clinically distinguishable: the first, in which word-blindness is associated with total agraphia, and a second, in which writing, spontaneous and under dictation, is conserved, while the act of copying is defective. The first has been described by Wernicke as cortical alexia, while the second he terms subcortical alexia. The anatomical localization of the first is in the angular gyrus of the left side, and the patients cannot read because their centre for the optic images is destroyed. The second, or subcortical, form of word-blindness has not been so definitely localized, but is very probably due to a lesion disconnecting the pli courbe from the cortical centres of common visual memory in the occipital lobe. A clinical example of the latter type is reported by Berkham.³⁶⁸_{V.23,p.668} The patient, a baker 50 years

old, was seized with an attack of extreme dizziness attended with difficulty of speech, as the result of sitting for three hours in his bake-room with the stove-flue closed. The dizziness passed off, but left him with the disturbance of speech and somewhat affected mentally. There was no paralysis of motion or sensation. Hearing, taste, and smell were unaffected, and the reflexes were normal. Nothing other than a peculiar shrinking of the field of vision was noticed in the eyes. This was present in the upper and nasal portion, while the lower was normal. His speech was irrelevant and scarcely comprehensible. He called familiar objects by wrong names, and would pick up red-hot coals with his bare fingers. He could count up to nineteen only, could not read, and of single letters could only tell correctly some of the vowels. In writing, his letters were very obscure; those dictated were poor, spontaneous writing was worse, while copied letters were scarcely decipherable. At the autopsy a sunken spot was observed over the left angular gyrus about the size of a hazel-nut. Beneath the sunken spot in the cortex was a cavity with destruction of the medullated commissural fibres, which were replaced by a granular substance. A case of alexia of mixed character is described by Weissenburg.⁹⁴ The patient, an adult male, lost power to read more than three to five words, and had agraphia. Later, symptoms of amnesic aphasia and word-deafness appeared. Vision was not affected. The lesion, a tumor, was found in the occipital lobe, and had largely destroyed the subcortical commissural fibres in the angular gyrus.

A case designated as mind-blindness is reported in detail by Wilbrand.⁶_{Sept. 24} which is of relative interest to the subject of alexia, as well as of much importance *per se*. The patient, a woman 63 years old, of previous good health, became suddenly unconscious and remained so for several weeks. When consciousness was regained she mistook animals for human beings, and her ideas as to her relations to the time and place were hazy. In her own house and amidst familiar furnishings she could not find her way, but if she closed her eyes her power of regulating her movements and ideas was much better. She thought, as she expressed it, "upside down." She complained of explosive sensations in her head, associated with flashes of light. There was no paralysis of ocular muscles, but there was incomplete left homonymous hemianopsia and a partial hemiopic defect in the

lower half of both right fields. Inside the defective left half-fields there was a zone in which only light—not form or color—was recognized. She read writing and printing easily with convex glasses. She could write to dictation correctly, but spontaneous writing was very imperfect. The symptoms persisted for ten years, when she died from another apoplectic stroke. At the necropsy the fusiform lobe on the right side was found to be depressed, and it had apparently been transformed into a loose-walled cavity which extended to the extremity of the occipital lobe. The occipital convolutions were reduced in size; the whole lobe was somewhat depressed, but not softened. The hinder part of the cuneus was softened, its extremity being connected with the softened area of the fusiform lobe. The cortex of the calcarine fissure was a little altered; the precuneus was normal, and so were the lateral aspects of the occipital lobe and of the whole parietal region. On the left side there was a small cavity under the gray matter of the second occipital convolution, with a softened area in front of it, evidently an old lesion, and anteriorly this was continuous with a recent softening which had completely destroyed all the central matter of the hemisphere. On reviewing all the circumstances of the case, Wilbrand is of the opinion that the following propositions may now be laid down: (1) that mind-blindness may arise through destruction of certain connecting fibres,—for example, by lesions which lie close under the surface of the first and second occipital convolutions; (2) that symptoms of permanent mind-blindness, with complete homonymous hemianopsia, or with hemiachromatopsia alone, are due to lesions in each occipital lobe affecting either the cortex or underlying fibres; (3) that the area for visual impressions and the area for visual recollections of one and the same hemisphere are in direct connection; and (4) that if, when the visual area in each hemisphere is affected, the area for visual recollection in one hemisphere is unaffected, the disturbances of optical perceptions vanish when the eyes are closed.

Charcot ⁷³_{June 18} has devised an instrument for evoking motor graphic images in persons affected with word-blindness, and applies it for the demonstration of a graphic motor centre functionally distinct.

The patient holds the pencil as in writing, at its upper portion, while the lower portion, nearest the writing point, is guided

in the formation of letters by the physician, the upper plate screening the writing from the patient's view. Three classes of persons were tested with the instrument: (1) three patients with organic lesions, one being agraphic and two word-blind; (2) cases of suggested hysteria; (3) normal persons. The patient with agraphia realized the movements, but could not make out a letter; whereas, the two patients with word-blindness recognized the letters and words by the movements, and, trained in this way, learned to decipher entire sentences. The instrument is an illustration of a totally superfluous ingenuity, since the same results should be accomplished by simply closing the eyes of the patient and guiding his pencil in forming letters.

Word-Deafness.—E. A. Reynolds²_{Nov. 28, '91} exhibited before the Manchester Clinical Society a woman, 30 years old, who, as the result of an apoplectic attack, was affected with total word-deafness, without motor involvement of speech. There was also word-blindness for written and printed letters and sentences, but no hemianopsia or other defect of vision. A very interesting case is reported by Shaw,²_{Feb. 27} that of a woman, aged 72, who had been deaf from childhood, until within six weeks of an apoplectic attack, which occurred in 1889. Hearing during this period of six weeks had returned and remained. After the apoplexy she was found to be absolutely word-deaf. There was also motor aphasia and agraphia, with word-blindness. This case presents several features of interest, among which may be noticed *the return of hearing six weeks before the last stroke, to disappear again on its supervention*; the remarkable picking out by the lesions of the several cortical areas, which by various observers have been associated with the faculty of language, corresponding with the clinical phenomena recorded—the second frontal convolution with the agraphia, the third frontal with the aphasia, the angular gyrus with the word-blindness, the temporo-sphenoidal with the word-deafness and general deafness, and the apparent recognition by the patient of her total failure to make herself understood, this last feature being somewhat noteworthy in view of the extensive nature of the cortical lesions.

Hysterical and Functional Defects of Speech.—Under the name of "Onomatomanic," Charcot and Magnan⁶_{Jan. 9} have recently described some curious forms of functional derangement of the

faculty of speech. These derangements occur in certain neurasthenic patients, and are quite distinct from any variety of aphasia or aphemia. Séglaś, of the Salpêtrière, in a recent paper,³¹_{Dec. 10, '91} describes five varieties of the affection. In the first, the chief feature is an agonized effort to recall some word; in the second, the sufferer seems possessed by some word, and under an irresistible impulse to go on continually repeating it; the third variety is characterized by the patient attaching some peculiar and dreadful meaning to some commonplace word; in the fourth, the patient attaches some talismanic influence to certain words, and goes on repeating them as a safeguard to himself; while in the last variety the individual is impelled to, as it were, spit out some word like a disgusting morsel. According to Séglaś, a word is a "complexion of images localized in certain centres of the cerebral cortex, the images being partly auditive, partly visual, partly motor. Thus, the characteristic feature of 'onomatomanie' is just the irregular action of one or several of these verbal images, resulting from some functional disturbance of the corresponding centre."

In what is called simple "onomatomanie," the chief feature is that the patients are generally possessed with the idea of recovering a word which escapes them. Although the word is quite familiar to them, although they can give its signification, state the place where they have read it or the moment at which they have heard it, they appeal vainly to their memory to recall it. The result is an agonized effort to recall the word, and presently the patient hears, as it were, the word vibrating at his inner ear, and he becomes calm again. In another variety of the affection it is the articulate part of speech which is at fault. The patient knows the word, sees it written, as it were, visibly before him, but is quite incapable of articulating it. Perhaps he utters some synonym of the word, or some word resembling it in certain letters, until suddenly the word is found and the painful crisis ends. More curious still are those cases in which the patient seems possessed by a word as if by a demon. Sufferers state that they hear the word constantly resounding in the head, or sometimes the word seems to fade away in a distant sort of echo. The attacks may come on each time the patient meets certain words in reading or hears them accidentally pronounced. Séglaś mentions the case of a woman who, each time she met the word "rage," seemed to feel

the word persisting before her eyes. Such cases shade off into cases of genuine hallucination, in which the patient hears imaginary words constantly sounding, or sees them written in the air. Other patients are tortured by the fear of uttering gross or compromising expressions, and often ask the by-standers what they have just said. Others, again, present the symptoms of "echolalia," or imitative speech, and go on repeating words like a phonograph.

A second distinct variety of the affection is described under the term of "onomatomanie associée," which includes those cases in which certain words acquire some peculiar and preponderant meaning in the eyes of the patient. He may regard some word as noxious and disgusting, to be got rid of by a violent expulsive effort, or he may look on some word as possessing the power of shielding him from hurt and mischief. A case is cited of a patient who could never hear the words "vendredi," "malheur," "treize," without at once correcting their supposed injurious meaning by pronouncing the words "samedi," "bonheur," "quatorze." Some patients have the idea that it is some enemy who has the power of making them hear and repeat the disquieting words. What distinguishes "onomatomanie" from ordinary cases of auditory hallucination is the occurrence of the crisis of agonizing effort, and the calm which follows when the crisis has been surmounted. It must be observed that the mere verbal features of the affection would be insufficient to distinguish it. As regards the prognostic value of the various forms of "onomatomanie," Ségla's is of opinion that the outlook is most grave in those cases in which the language troubles seem to depend upon an erethism of the motor centres exaggerating the intensity of the motor images, and impelling the patient to an irresistible impulse to expel the word. This last symptom, he believes, denotes a cerebral disintegration characteristic of the worst forms of intellectual decline.

Chevron, ^{SGS}_{Sept. 10} Director of the Institute for Stutterers at Paris, opposes the view, to which he says Ballet and Pitres incline, that stuttering (bégaiement) is symptomatic of hysteria; and also the view of Féré, who thought he found, in all such cases, the presence of feebleness and slowness of movements in the tongue; although Chevron admits that these conditions might exist as results of want of harmony in articulation. Treatment should be

directed toward the re-establishment of co-ordination. A case of so-called aphasia is reported by Angel Pulido, corresponding editor, Madrid, Spain, ⁶⁷³Jan. which developed as a result of depressing emotion, and was associated with many symptoms suggesting melancholia. Recovery resulted within three months. Rendu ²¹²Apr.10 has been making some studies of hysterical aphasia in the Hôpital Necker, from which he concludes that vitiated-blood states are causative factors in some cases. Donkin ⁴⁷Pts.2,3,'91 reports an interesting case of speech-defect, functional in character and resulting from fright and shock, in a strong, healthy man. The defect of speech was that of total aphonia occasionally, while at other times it manifested itself as an ataxic aphasia, the facial muscles being contorted, in the effort to speak, into grimaces of an exaggerated type.

Stammering and Stuttering.—Ssiskorski ³⁶Jan. has published an elaborate monograph upon this subject. Some of his statistics are of interest. Out of 22,787 school-children, 1.573 per cent. stuttered, and 51 per cent. of them began between the third and fourth year. As regards nationalities, the French percentage is 6 to 7 per cent., while the Russian, strange to say, is only from 1 to 1½ per cent. As to the cause, from 67 to 71 per cent. of the cases originate in a fright, while about 16 per cent. are due to imitation. In beginning treatment, the author recommends absolute silence for from seven to ten days. The experience of the writer renders this monograph authoritative upon the subject. Amy Stone ⁸⁰Feb. advocates the adoption of the purely oral method in treating deaf-mutes and correcting defective articulation in a hearing child. Gutzmann ⁶⁹Mar.10 especially emphasizes the importance of imitation as a factor in developing stammering. Other papers are by Eich, ¹⁰¹Sept.16 Alonzo Bryan, ¹⁸⁵June and Edward Eck. ¹⁵⁷Feb.

CEREBRAL LESIONS.

Traumatism.—Alexander Miles ⁴⁷Summer No., Pt.2 was awarded a gold medal and the Syme Surgical Fellowship in the University of Edinburgh for a paper entitled "The Mechanism of Brain Injuries." The paper includes a critical *résumé* of the literature of the subject, as well as a number of experimental and clinical observations, which are original. The author's conclusions are, in condensed form: 1. That the group of phenomena, commonly spoken of as

“concussion of the brain,” is the result of a temporary anæmia of that organ. 2. That this anæmia is the reflex result of stimulation of the restiform bodies, and perhaps other important centres in the region of the bulb. 3. That these parts are stimulated by the wave of cerebro-spinal fluid, which rushes through the aqueduct of Sylvius, the foramen of Magendie, and from the subarachnoid space of the brain to that of the cord when a severe blow is dealt over the skull. 4. That in accordance with the laws of hydrostatics this cerebro-spinal fluid wave will disturb the equilibrium of the ultimate nerve-cells throughout the central nervous system. 5. That the hæmorrhages found throughout the brain-substance and on its surface are to be ascribed to the recession of the cerebro-spinal fluid, which naturally supports the blood-vessels of the cerebrum. 6. That the petechial hæmorrhages found in cases of so-called concussion are not the proximate cause of the symptoms of that condition. They are rather to be looked upon as an index of the force producing the injury, than as the cause of the resulting phenomena.

A clinical paper by McPherson, ⁶_{May 21} based upon autopsies with microscopical examinations of the cortex-cells in two cases of fatal cerebral concussion, constitutes a most valuable supplement to Miles's contribution. McPherson found in both cases a very extensive vacuolation of the cells of the third and fourth layers in the frontal and motor cortex. From his studies upon the subject McPherson concludes (1) that a nuclear nerve-cell lesion in the cortex is a condition of great importance, and indicates an interference with the vitality and function of the cell; (2) that it is capable of being produced by vascular changes which affect the nutrition of the cell; (3) that when the lesion is situated chiefly in the motor cortex, it tends to interfere with the vital functions by the implication of the thermotaxic cells; (4) that important vasomotor changes occur, after concussion, which are the result either of exhaustion of the subcortical vasomotor centres from over-pressure, or of their inhibition by hyperaction of the cortical cells implicated.

Clinical examples of concussion of more than ordinary interest are reported by Saunders, ⁵⁵⁷_{Apr.} Michelmores, ⁶_{June 11} and Cuddy, ¹⁰_{Apr.} Two cases of recovery from severe injury to the brain from penetrating gunshot wounds are reported,—one by Blakie Smith, ²_{Sept. 18} the other

by McFarland.¹⁹⁹_{July} A case of very extensive destruction of the central brain-substance from a pistol-ball, ending fatally only after two months, is related by Marks.⁶⁶³_{July} Fracture of the skull affecting both convexity and base is the subject of clinical papers of neurological interest by Reed,²⁸⁵_{Feb.15} Norton,²²_{Apr.13} Hingston,²⁸²_{July} Simmons,¹⁴⁷_{Aug.} and Kelnjack,²_{v.1,p.441} whose case was that of an infant 5 months old. The cases of basal fracture are remarkable for the large percentage of recoveries.

Hæmorrhage.—Primary hæmorrhage into the ventricles is not a common pathological condition, and, for this reason, two such cases reported by Dana²⁴²_{Jan.} and Johnston,²_{June 4} respectively, are of interest. In neither case was there motor or sensory paralysis, and in both death was not long delayed. In Dana's case, the hæmorrhage resulted from a ruptured superficial vein in the outer and anterior part of the optic thalamus. Wynne²_{Dec.19,'91} exhibited, before the London Pathological Society, a number of specimens illustrating the origin of cysts in pachymeningitis hæmorrhagica, from their commencement as small hæmorrhages from the pia to their final termination as an organized membrane "arachnoid cyst." In no specimen was there any evidence of inflammation of the dura. Dehio²¹_{June 6} gives the history of a patient in whom an apoplectic attack occurred, the site of the hæmorrhage being in the occipital lobe; rather an unusual location. The topical diagnosis, based largely upon a left-sided homonymous hemianopsia, was made during life, and confirmed at the autopsy. Eshner⁹_{Dec.19,'91} writes upon diagnosis in cerebral hæmorrhage. Clinical papers on cerebral hæmorrhage are by Stevenson,¹_{Dec.5,'91} Boyd,³⁶_{June} and Williams.²_{Sept.24} Contributions upon treatment are by Mills,¹⁰⁵¹_{Mar.} who comments favorably upon some of the methods advocated by Robert Bowles, especially that of turning the patient over on the side paralyzed to relieve stertor; and Fosbrook,⁶_{May 28} who advocates venesection. Bremer⁵_{Feb.} relates the history of a man affected with extra-dural hæmorrhage over the third left frontal convolution, rendering him aphasic, the aphasia leading to a correct localization of the lesion, an operation, and the patient's complete recovery.

Thrombosis, Embolism, and Aneurism.—C. Du Pasquier¹¹⁸_{Mar.} from observations based upon three cases of thrombosis of the superior longitudinal sinus in early life, concludes that a probable diagnosis can be made by the succession of the following symp-

toms: Somnolence, coma, stiffness (*raideur*), prolonged fixed attitude in extension or flexion, grinding of the teeth, blepharospasm, and trembling of the digital extremities. A quickly fatal case of thrombosis (with autopsy) of the Sylvian branch of the middle cerebral artery is reported by Balloch.⁹_{July 2} Lafleur²⁸²_{Mar.} records the results of an autopsy in a case of thrombotic softening of the pons Varolii. Pepin¹⁸⁸_{Dec. 13, '91} reports a case of sinus thrombosis, in an infant 3 months old, following purulent otitis. The best paper of the year upon the subject of superior sinus thrombosis is by McCaskey,⁹_{Feb. 13} who justly criticises our limited knowledge of the diagnostic symptomatology,—a deficiency due largely to neglect. The condition should be recognized clinically with as much ease, he thinks, as hæmorrhage or other lesions; and he considers the following symptoms, present in association, as fairly diagnostic: Persistent headache, nausea, distension of the frontal veins, œdema of the eyelids, exophthalmos, great distension of the left external jugular vein, abolition of the light reflex, with unconsciousness and fever as later symptoms.

A case of embolic softening of the posterior segment of the internal capsule reported by Dann²_{May 4} is of interest from the fact that, among other symptoms, the patient developed most severe trophic symptoms in the eye, leg, and foot, the eye becoming completely disintegrated and the toes of the right foot sloughing off. Other clinical papers upon embolism are by Wiglesworth,¹⁸⁷_{July} Parsons,²_{Dec. 26, '91} Eisendrath,⁹_{Feb. 13} and Tison.⁷_{May 27} Klippel and Bastian⁷_{Feb.} relate the symptoms in a case of aneurism of the basilar artery, which ended fatally by rupture. The symptoms had been headache and epilepsy, with turning to the right, and involvement of the second, fifth, seventh, ninth, tenth, eleventh, and twelfth nerves. A case of arterio-venous aneurism of the cavernous sinus and the internal carotid artery due to trauma, in a man 19 years old, is reported by Mayet.²¹¹_{Apr. 10} Aneurism of the basilar artery, occurring in a 7-year-old boy, and causing death, is the subject of a clinical paper by Oppe.⁵⁷_{No. 34}

Miscellaneous Lesions.—Acute hæmorrhagic encephalitis is the subject of a paper by Koenigsdorf,⁶⁹_{Mar. 3} who states that it may occur (1) in epidemic cerebro-spinal meningitis, (2) in malignant endocarditis, (3) as a sequel of influenza, and (4) as a primary affection. He records the following case, occurring during the

recent epidemic of influenza. A girl aged 21, hitherto healthy, was suddenly seized with headache and general malaise. After a varying course she became comatose, on the fourth day. There was no vomiting or convulsion. On admission, on the fifth day, the patient was still unconscious. There were continuous lateral movements of the eyes and slow, deliberate movements of the left arm. Temperature, 39° C. (102.2° F.). There was incontinence of urine and fæces. On the sixth day the movements of the eye had ceased, but those of the arm persisted. There was paralysis of the right arm and, on the next day, of the right side. She then died, with a high temperature. At the necropsy the right lateral sinus and a large vein over the right hemisphere were thrombosed. The convolutions were flattened and the brain-substance soft. The lateral ventricles were of normal size (the coma had persisted from the fourth day until death), but the walls were spotted with hæmorrhages. On section through the central ganglia the white substance of the left internal capsule and the left optic thalamus were beset with hæmorrhages. There was also a patch of softening in this same thalamus. The central ganglia on the right side, the base of the brain, medulla, and cerebellum were unaffected. The cerebral cortex was intact. There was no evidence of embolism; the meninges and heart were healthy; the spleen was enlarged. Sections through the left optic thalamus showed infiltration, with leucocytes more or less regularly distributed, but at times more particularly collected about the vessels. The individual capillary hæmorrhages were irregular in outline. The inflammatory process had evidently started from the vessels, giving rise to extravasation of leucocytes and capillary hæmorrhages. Bacteriological investigation was negative.

Lichtenstein ⁶⁹_{Jan. 14} gives a *résumé* of the clinical symptoms and pathological findings in four cases of acute hæmorrhagic encephalitis, observed by him during one and a half years. The cause he considered probably of an infectious nature, and influenza was believed to have borne some causal relation. J. Schmidt ⁶⁹_{Aug. 4} gives the history of a similar case, attributed also to *la grippe*. A. Lo Re ⁵⁰⁵_{Jan. 21} records a case of cerebral gout in a man aged 66. The patient in his youth had lived very unsteadily, and, without having contracted syphilis, had acquired a urethral stricture. He had several attacks of polyarthritis rheumatica, and almost every year

had recurrences of a very troublesome iritis. In November, 1883, one of these attacks came on, and at the end of the following month, the iritis being cured, he had an attack of violent neuralgic pain in the right eye, extending over the temple and malar prominence, and accompanied by great excitability and irritability of temper. Recourse was had to quinine and valerian, with temporary benefit. Nervous phenomena of the following character then appeared: Sudden giddiness; confusion of ideas; desire to micturate without ability to do so; dimness of sight; right pupil irregular and constricted by the antecedent iritis, the left being widely dilated. The patient was also troubled with delusions, believing he had taken atropine instead of quinine. Speech was confused, syllables being run together, and ideation was very imperfect; the pulse was very frequent, respiration being slow and deep. There were no disturbances of sensory or motor functions, and the eyes and ears were stated to be normal. The attack ended with the passage of much urine, a tendency to sleep, and gradual disappearance of the other symptoms. These attacks were repeated on several occasions, and were accompanied by gouty manifestations, especially in the great toe and other toe-joints. Lo Re thinks that the case is almost certainly one of cerebral gout.

Huguénin²¹⁴_{No.2} does not believe that circulatory changes in the brain produce fatal œdema until more or less grave changes occur in the brain or skull. Among such changes¹⁵¹_{May} are obliteration of the lymph-paths, cessation of cranial growth with concomitant brain pressure, and brain disease itself.

He endeavors to show the improbability of œdema resulting from congestion by the important fact that, in children dying from hyperæmia, œdema, or mild hydrocephalus, an incomplete streptococcus meningitis was always found.

MISCELLANEOUS PARALYSES.

Infantile Cerebral Paralysis.—Sachs¹_{July 30} has published a monograph on this subject, based upon two hundred and twenty-five cases, divided into three etiological classes: (1) cases of uterine origin; (2) cases due to trauma during labor; (3) cases acquired subsequently. The intra-uterine cases are dependent upon gross cerebral defects, or upon an agenesis corticalis, in which the highest cells only are arrested in development. Traumatic cases

occurring during labor are usually of extensive meningeal hæmorrhage, variously located, the degree of palsy depending upon the extent of damage to the cortex. The post-natal acquired palsies are the most interesting and important group. The causes are much the same as in adult life—hæmorrhage, thrombosis, and embolism. Strümpell's theory of a polioencephalitis is rejected. General sclerosis, cyst formations, and porencephalic defects are the changes observed secondary to the initial lesion. The author believes that many cases diagnosed as athetosis, athetoid chorea, or epilepsy, are really cases belonging under this third class, and it is especially important, in its bearings upon surgical treatment, to recognize such an association with epilepsy. Reference is made to the author's personal experience in the surgical treatment of such cases, which has been disappointing. The earlier the stage of disease, the better the outlook from surgical procedure. Sachs²⁴²_{Aug.} makes a further contribution to the pathology of arrested cerebral development in a study of a small group of such cases, which he describes as follows: "It includes, possibly, the worst form of idiocy, the palsy or epilepsy if present being of secondary importance. It runs in families, several in the same family being similarly affected. The subject appears well and healthy up to about the fifth or eighth month, when a marked retrograde movement sets in: all the cerebral functions, sensory and motor, become impaired; the child becomes idiotic, blind, and more or less paretic, and, fortunately, dies promptly. Six such cases have been studied by the writer. The pathological changes, as observed in two autopsies, were those of true agenesis corticalis. In the particular case which forms the text for the paper quoted, not a single normal pyramidal cell could be found. Railton²_{Feb.27} reports almost similar pathological findings in a case of double spastic hemiplegia with idiocy in a 3-year-old boy. There was diminution of the larger ganglion cells of the motor cortex, with increase of the neuroglia.

Other papers upon the pathology of infantile cerebral paralysis are by Gierlich,⁶⁸_{Mar.} who studied the paths of secondary degeneration; Kreuser,⁶⁸_{Apr.} who also reports observations upon secondary degeneration tracts in a case of this character; Pepin,¹⁸⁸_{Dec.7,'91} who describes an atrophied brain found in a case of pre-natal origin; and Vailon,²¹_{Dec.9,'91} who found a marked degree of hemiatrophy of the brain,

with loss of cells and increase of neuroglia, in the case of a boy who died at the age of 15, having been paralyzed seven years.

Starr ⁵⁹_{Jan.23} writes upon infantile cerebral palsies from the standpoint of surgical treatment by craniectomy. His conclusions are summarized as follows: 1. Hemiplegia, sensory defects and imbecility, occurring with or without epilepsy in children, are chronic diseases, incurable by medical treatment. Any means which may be legitimately used to save the individual from a life of invalidism, and to take the care from the family, is to be employed. 2. The pathological conditions producing these symptoms may be either gross defects and atrophies of the brain or an arrest of development in the cerebral cells, without any change apparent to the naked eye. 3. It is at present impossible to determine absolutely the pathological condition present in any given case without an exploratory operation. 4. Such operations are not without danger, but if caution be used in opening the dura, and if the operation be made as short as possible, the dangers are avoided. 5. When manifest atrophies are present the operation will produce no result. When the condition is one of arrested development of cerebral tissue, it may prove of service. When clots, cysts, or tumors are found and removed, the chances of recovery are increased. When the skull is markedly microcephalic from early union of the sutures, the increased space given to the brain by the operation seems to stimulate its growth and development. 6. Epileptic attacks are often reduced in frequency and modified in character by craniectomy. When the opening of the skull remains covered only by the soft tissues, it appears to act as a safety-valve, allowing changes in the intra-cranial contents to occur without producing pressure on the brain. 7. While hemiplegia, aphasia, athetosis, and sensory defects have been relieved by the operation, it is as yet impossible to predict to what extent imbecility may be relieved. 8. Reports of cases should be made in full, and not within six months of the time of operation, as conclusions cannot be trustworthy unless reached by long observation. Roswell Park ⁹_{Dec.10} reports seven craniectomies with three deaths, two failures, and two cases "brilliantly successful beyond all expectation." The two successful cases were of epilepsy, with paralysis and imbecility. Miller ²_{No.164} did a successful linear craniotomy on an infant, 8 months old, who was microcephalic and had double optic neuritis. Improvement is

said to have been immediate, decided, and progressive. Victor Horsley ²_{Sept. 12, '91} reports two such cases: one ending fatally, the other in marked improvement. He expresses himself as decidedly in favor of the operation.

Two clinical lectures upon the general subject have been published during the year: one by Dana ¹⁰¹³_{Jan.} and the other by J. Madison Taylor. ²³_{Dec., '91}

Hemiplegia.—The advantageous results of careful investigation, in what is ordinarily considered a most sterile field of study, is quite happily illustrated in an interesting paper by Ferguson, ⁹⁸_{Jan.} who reports five cases of hemiplegia, each possessing some anomalous feature of interest. The first case was one apparently at variance with authoritative statements, in that the patient presented conjugate deviation *toward* the paralyzed side. There was absolute loss of motion and sensation in the left arm and leg with left lateral hemianopsia, the head, however, being spasmodically and permanently directed toward the same or paralyzed side. The apparent paradox was found, at the autopsy, to be due to a non-involvement of the fibres for the head and eyes in the internal capsules, which lie immediately in front of the genu or knee. The author calls attention to the value of this case as also illustrating the difference in symptoms between an irritative and a destructive lesion. The second case was that of a man, 49 years old, who gave a history of syphilitic infection when about 20 years old, and who had, at 36, a hemiplegia affecting the right side. Two years later a second attack occurred on the same side, and three years subsequently he had a third seizure. A short time after the third attack he began to complain of paræsthesiæ and numbness of the feet, pains in the legs, cincture sensation, and the knee-jerks began to steadily diminish. Gradually all the symptoms of posterior sclerosis appeared, and, *pari passu* with this development, the knee-reflex became fainter and fainter, until when examined, shortly before his death, it had disappeared absolutely on the left and was barely perceptible on the right (hemiplegic) side. The autopsy showed cerebral softening with secondary degeneration in the lateral tracts, and also the characteristic pathological changes in locomotor ataxia. Case III was that of a patient in whom the knee-jerks had been abolished for years as a result of diabetes, but returned on the paralyzed side after an attack of hemiplegia. Case IV was

one of hemiplegia affecting the *left* leg, arm, and face, with *aphasia* of several months' duration, in a man who was markedly left-handed. Case V, the last, was one in which with an ordinary hemiplegic seizure there were present the interesting phenomena of so-called associated movements. On pinching the toes of the paralyzed foot the sound foot would be moved, then the sound arm, and finally there would appear a grimace of pain on the sound side of the face, there being no movements of the side paralyzed. Auerbach⁶⁹_{Feb.25} relates the history of a boy, 17 years old, in whom an attack of hemiplegia occurred in association with diphtheria, complicated with nephritis. The lesion was of the internal capsule, and supposed to have been hæmorrhagic. The literature of such cases is reviewed *in extenso*. A case of hemiplegia with hemianæsthesia of the left side and left side homonymous hemianopsia, in a man 57 years old, is reported by Brasche.²¹_{Mar.} The lesion principally involved the right occipital lobe.

Jaccoud,³_{Feb.10} in a paper upon tubercular disease of the brain, calls attention to the fact that sudden hemiplegia does not always mean, as seems to be generally supposed, a vascular lesion (hæmorrhage—thrombosis—embolus). Cases are cited of such hemiplegias caused by hydatids, meningitis, and tubercular disease. Traumatic hemiplegia is the subject of two clinical papers by Page⁶_{Aug.20} and Potts,²⁴²_{Apr.} Page's case is especially interesting, illustrating several nice points in diagnosis. The patient, a man 50 years old, received an injury to the right anterior temporal region which caused right hemiplegia with associated dilatation of the pupil on the paralyzed side ("Hutchinson's pupil"). This pupillary dilatation is ordinarily an evidence of a ruptured middle meningeal artery, and the first supposition quite naturally would have been that such a rupture had occurred on the left side by *contre-coup*. The dilatation was extreme and the pupil immobile, however, while the general condition of the patient did not seem alarming or critical, a condition inconsistent with previous experience in ruptured meningeal arteries, which has shown that the pupillary dilatation in such cases is in a ratio proportionate to the amount of the hæmorrhage. Page, for this and other reasons, abandoned the diagnosis of meningeal hæmorrhage and decided that a fracture of the base had probably occurred, directly injuring the third nerve in the region of the clinoid process. This was

found to be the case at the autopsy. Potts's case was one of right hemiplegia with aphasia and left hemiopia, due to an injury to the brain from a deeply-penetrating wound of the left orbit.

Monoplegia.—Zenner⁴²⁶_{Mar} reports two cases of cerebral monoplegia: one of the brachial type, the other involving only the leg-muscles below the knee. In both there was sensory impairment. In the patient with the brachial paralysis there was Jacksonian epilepsy, while no form of spasm was observed in the other patient. In both cases the site of injury, as indicated by cicatrix and bone-depression, corresponded exactly to the centres for the limbs affected. G. Castellani⁶⁸_{Apr.} relates the case of a man who met with an injury to the right temporal region which rendered him unconscious, and was followed by complete paralysis in the left arm. A fracture, with depression of bone, was found over the lower pre-Rolandic region and foot of the second and third frontal convolutions. Trephining was done and the dura found intact over this region, but the patient recovered almost entirely within a few weeks his lost power. The author's assumption that the case illustrates an anomaly in cerebral localization is not justified by the facts in the case. Toyozumi, of Japan,²⁰⁰_{Nov. 11, '91} reports a case of brachio-facial paralysis in a woman 64 years old, in whom in less than six months very extensive atrophy of the muscles of the affected arm occurred. Extreme atrophy of the muscles of the arm, developing within four weeks after an attack of hemiplegia, occurred in a patient of Darkschewitz.⁷⁵_{No. 20, '91} Giovanni⁵⁸⁹_{June 23} reports a case of facial paralysis of central origin due to influenza.

Alternate Hemiplegia.—Souques⁴⁵²_{Sept., Oct., '91} describes the case of a child, 4½ years old, affected with alternate hemiplegia (right leg and arm, left face) complicated with double internal strabismus and glossoplegia (Millard Gubler type). The lesion was of the bulbar protuberance.

Hysterical Paralysis.—This subject is represented by an abundant literature, most of the papers being clinical reports of cases. Fallot⁴⁶_{Nov. 3, '91} gives a full history of a case of hysterical hemiplegia with contracture and muscular atrophy, with a full bibliography. Bremer⁹⁸_{Apr.} describes a case of intermittent paralysis in a 16-year-old boy, which illustrated some most highly-exaggerated phases of hysteria. The abolition of the knee-jerks and alterations in the electric responses were symptoms not consistent with

pure hysteria, however. Blake⁹⁹_{Jan.7} reports a case which will prove of value for reference in medico-legal cases involving suits for damages for supposed injury. The patient, a man, was thrown over backward by the sudden tilting of a board-end on which he was standing, caused by the other end of the board being struck by a falling derrick. He was not bruised, and no external evidence of injury appeared, but he had to be carried home, and subsequently developed a paralysis of the right leg and a paretic weakness of the entire right side. He had also hemianæsthesia, amblyopia of both eyes, loss of color-vision absolute in the right side, with preservation of red and green only in the left, loss of smell and taste, and diminished hearing on the right. These symptoms remained more or less constantly for some months, when his suit was tried and he recovered \$6000 damages. Within three months thereafter he had entirely recovered. Luys²⁴_{May 15} and Barbaud²⁴_{May 22} report cases of long-standing paralysis cured by hypnotic suggestion. Hughes¹³⁹_{Feb.} describes a peculiar trembling monoplegia, "which seems to have possessed features sufficiently characteristic to have justified a diagnosis of hysteria." Laycock²⁸⁵_{June 15} reports a case of hysterical monoplegia. C. Negro⁵⁸⁹_{Dec. 8, 9, '91} also describes a case of brachial monoplegia, hysterical in character, and gives a full *résumé* of the literature of the subject. Racchi⁵⁸⁹_{Nov. 11, '91} reports a case of hysterical facial paralysis.

Bulbar Paralysis.—There are few diseases of the nervous system with a more constant or better defined pathology than true bulbar, or Duchenne's paralysis. There is, however, a type of disease closely resembling the disease in question in the more characteristic symptoms, which has been designated pseudo-bulbar paralysis, and which has baffled all positive pathological research hitherto, the nuclei of the bulb having been found in such cases to be absolutely intact. Our records have been enriched during the past twelve months with four clinical examples of this affection, most carefully and intelligently observed, with the result that our knowledge of the pathology involved has been greatly enlarged, and rendered, we may almost say, practically accurate. These cases were reported by Hoppe,⁴_{Apr.4} Senator,⁷⁵_{Mar.15} Max Anderly,⁶_{Aug.29} and Leresche.¹⁹⁷_{Mar.29} Boulay²⁴²_{June} has also contributed a thoughtful paper upon the subject, which, however, is open to serious criticism as to the accuracy of some points of differential diagnosis

between the true and false cases, Boulay stating that, in the false type, the superior facial and eye-muscles are not affected, while Hoppe, Anderly, and others observed an involvement of both. Hoppe is especially clear in delineating the diagnostic characteristics of pseudo-bulbar paralysis. These he states are: (1) absence of atrophy or electrical change in the muscles affected; (2) involvement of upper face-muscles and oculo-motor nerve; (3) infrequent affection of the hypoglossal nerve; (4) distinct remissions and sudden changes in symptoms; (5) negative necropsy as regards lesions of the nuclei in the bulb. He does not believe the disease to be of either hysterical or peripheral origin, or as belonging to the group described by Erb, in which ptosis, weakness of neck- and throat-muscles, secondary paresis of tongue and extremities, and involvement of upper face occur, for in Erb's cases atrophic wasting was present. He suggests that these cases may be due to a form of auto-intoxication or some undiscovered lesion of the cerebrum. Senator, whose case resembled Hoppe's in most respects, was also unable to find any explanatory lesions at the autopsy, though the cerebrum proper was not examined microscopically, a procedure which, had it been done, might, he suggests, have explained the case. In support of the supposition that the lesions in such cases are cerebral and bilateral in distribution, Anderly records an example of the disease in which a necropsy showed areas of softening almost symmetrically located in the internal capsules and lenticular nuclei of both hemispheres, with some atrophy of the right frontal lobe. Leresche's case was that of a man in whom two attacks of hemiplegia occurred, with involvement, in the second attack, of speech, voice, deglutition, and movements of the tongue and face, the symptoms (without autopsy) pointing, in the reporter's opinion, to bilateral lesion of the lenticular nuclei. These, with other recent observations, tend to confirm the previous observations of Kahler and Pick and Charcot and Marie, who found, in cases of bulbar paralysis, indications of degenerative change as high as the cortex itself.

Two cases of true bulbar paralysis of rapid onset and quickly terminating in death are reported, one by Hauser³¹_{Apr.7} and one by Vandervelde.²¹²_{Apr.2} Hauser's patient, a man 30 years old, died within nine days from the commencement of bulbar symptoms.

The diagnosis was based upon the presence of incomplete paralysis of all four extremities, of the inferior branches of the facial, of deglutition, and of respiration. As no autopsy was obtained, the possibility of a basal meningitis must be taken into consideration in estimating the value of the case. Vandervelde's case was much more typical and complete in symptomatology and the diagnosis was confirmed by autopsy. Death occurred in less than three weeks from the commencement of symptoms. The case was of inflammatory origin and began with a sore throat. The best paper of the year upon the subject of bulbar paralysis is by Tooth and Turner,⁴⁷ Winter No., '91 reflecting the results of original research in this field, and representing a most scientific and comprehensive elaboration of the subject. Their conclusions with regard to the innervation of the facial muscles may be briefly summarized as follows: The facial muscles may be divided into three divisions. First, the oculo-facial group, frontalis, orbicularis palpebrarum, and corrugator supercilii. Second, the middle group, elevators and depressors of the angles of the mouth, zygomatics, risorius, and buccinators. Third, the oro-facial group, or orbicularis oris. All these muscles are innervated by fibres included in the facial trunk, and are all paralyzed when the *nerve* is affected, as is shown by any ordinary case of Bell's paralysis. When, however, the facial nucleus only is diseased, there results paralysis of the middle group only. The upper group is paralyzed when the oculo-motor nucleus is affected, the course of the fibres being probably the posterior longitudinal bundle.

Paralysis of the orbicularis oris is associated with that of the hypoglossal group of muscles, and is therefore presumably innervated by that nucleus. The course of the fibres is at present obscure, but is possibly against the posterior longitudinal bundle.

The eleventh nerve, or accessorius vagi, is known to contain motor fibres for the palate and vocal cords. The apparent nucleus of this nerve is indistinguishable from that of the vagus, with which it is continuous. Its nerve-roots may be regarded as the lowest fibres of the vagus, and its nucleus as the lowest part of the vagus nucleus. Its motor fibres which innervate the palate and larynx are, in all probability, derived from the region of the hypoglossal nucleus.

Benedikt⁵⁷_{No.1} claims to have found a valuable diagnostic sign, in

bulbar paralysis, in the condition of hyperæsthesia of the bones of the base of the skull, tested at the orbital roof and the hard palate.

CEREBRAL ABSCESS.

Abscess located in the medulla is quite a rare condition of disease. It has been observed, however, twice by Eisenlohr^{69 Feb. 11} within the past twelve months. In the first case, that of a man 43 years old, affected with fetid empyema, which was evidently the origin of the pus, the abscess was found at the floor of the fourth ventricle, and was prolonged downward as far as the second cervical nerve. A smaller focus of pus was found in the right half of the medulla. The second case was that of a man, 24 years old, in whom the abscess was secondary to an attack of cerebro-spinal meningitis. In both cases the symptoms corresponded to the location of the lesion. Several examples of cerebral abscess secondary to attacks of *la grippe* are reported. In none of them was there any associated middle-ear disease. Among those reporting cases of this character are Redtenbacher,^{57 Apr. 24} Schindler,^{243 Sept.} and Zeller.^{22 Apr. 13} All their patients were adults, and in all their cases the abscess development occurred early in the attack of *la grippe*. In Schindler's and Redtenbacher's cases the abscess was secondary to inflammation of the frontal sinus; in Zeller's case it was due to infection from a phlegmon of the right orbit. One interesting case of abscess is recorded by Maugham.^{2 Apr. 2} The patient was a young woman, who had suffered for three months from supra-orbital pain and some diminution of vision, but who continued to attend to her household duties up to the day of her death, the cause of death, which was quite sudden, being discovered only at the autopsy, which revealed a large quantity of pus which had escaped from a fibrous pus-sac attached to the petrous bone, and communicating with a carious tympanum. Another case, somewhat similar in the absence of diagnostic symptoms, or of any symptoms, indeed, is reported by Gouget.^{7 Apr., May} A man, 54 years old, without any premonitory symptoms, suddenly lost consciousness. Apparent recovery occurred, but, shortly afterward, another attack of unconsciousness occurred, which ended fatally within a few days. The autopsy showed a large abscess-cavity in the left second frontal lobe. Cases of abscess from suppurative otitis are reported by Janssen,^{4 No. 49, '91} Minor,^{849 June} Parsons,^{16 Mar.} Briggs,^{147 Sept.} and Abt.^{1052 Sept.}

Parsons's case was one of multiple abscesses, eight in number. The temporal convolution was involved in two cases and the cerebellum in one. Abt also reported a case which had quite an unusual origin in septic infection from furuncles, several in number, situated upon the surface of the nose. In Minor's case the abscess developed during the convalescent stage of typhoid fever in a boy 16 years old. Traumatic abscess of the brain is the subject of clinical papers by Norbury,⁹ Hutchinson,²⁸² Parks,¹² Welch,⁷⁶⁴ and Brown,² all ending fatally. In Brown's, Abt's, Parks's, Briggs's and Zeller's cases, operation was done, but the only patient benefited was Zeller's, who recovered. Two other successful operations for cerebral abscess are reported: one by Baginski and Gluck,⁴ the other by Dean.⁶ Baginski's case was one of abscess of the temporal lobe, secondary to a purulent otitis caused by a pea in the ear. There were several symptoms pointing to abscess, but none of localizing value, except hypersensitiveness over the temporal bone. There was no elevation of temperature throughout the entire illness. A trephine-opening over the left temporal bone revealed an abscess, which was emptied, the child making a quick and complete recovery. In Dean's case the abscess was not found, as expected, in the temporal lobe (otitis), but was found through exploratory puncture in the cerebellum. This patient also made a good recovery.

TUMORS OF THE BRAIN.

General Considerations.—In the discussion of a paper read before the Twenty-first German Surgical Congress by Braman, of Halle, Seydel²⁰¹¹ presented an analytical study of 100 cases of brain-tumor. Of this number, 27 were tubercular, 39 were gliomas, gliosarcomas, and sarcomas, 6 syphilitic, 2 each cysticercus, actinomycoses, and carcinoma, and in the remainder the character was not stated. A study of these cases from the stand-point of surgical interference showed that only three cases were really operable. The tubercular cases were associated with tuberculosis elsewhere, the carcinomatous were metastatic, the parasitic were of the central brain-substance and inaccessible, the syphilitic were acknowledged as inappropriate, and of the thirty-nine cases of gliomatous growths only two presented symptoms of positive localizing value. One of the remaining cases was also favorable for operative pro-

cedure. [This percentage is far below that which the experience of the editor would justify. The proportion of tubercular tumors, in the first place, was rather unusually high, and the author's experience as to the number of cases of brain-tumor in which localizing symptoms are present is quite radically at variance with Seydel's. I have been able to localize, with quite sufficient accuracy for surgical guidance, more than a fourth of all the cases, some fifty in number, which I have seen.—Ed.] An analysis of the forty-three cases which have been reported during the year shows eighteen in which the neoplasm was accurately localized. In four of these the tumor (a sarcoma, an echinococcus cyst, an angioma, and a subarachnoid cyst) was removed successfully, and at least four other cases offered, as demonstrated at the autopsy, a fair prospect of successful operation. Pathologically, these cases were gliosarcoma, fibrosarcoma, and sarcoma in 22, cystic in 10, tubercular in 5, vascular in 3, carcinoma in 1, and not stated in 2. The comparative safety with which the brain may be invaded surgically, under antiseptic precautions, together with the certainty of death from the tumor if not removed, would seem to justify an exploratory entrance into the cranial cavity where tumor has been positively diagnosed, almost regardless of accurately definite localizing data. The symptomatic benefit brought about by relief of pressure is quite often decided, and a sufficient justification alone. The proportion of operable cases in this series of 43 cases approximates 10 per cent., which is, in my experience, a fair ratio.

Visual Disturbances in Brain-Tumor.—Hirschberg, ⁷⁵_{No. 15, '91} as a result of studies in this field, describes several symptomatic conditions, which he states have either not been mentioned at all heretofore, or so imperfectly noted as to render them valueless. He especially emphasizes the fact that they occur before the local symptoms, and constitute essential symptoms of the fundamental disease. Three forms of disturbance of vision are described: 1. Sudden transient blindness of the epileptic amaurosis type. Its duration is about two minutes, though occasionally it may last several hours. It may occur several times daily, and is very annoying to the patient. 2. Permanent defects due to changes in the brain-substance. (a) Homonymous hemianopsia affecting both eyes, from destruction of one or both visual centres in the occipital lobes, or of the optic radiations, or of the cranial nerves;

rarely, partial hemianopsia, where only a portion of the visual centre is affected. (b) Crossed temporal hemianopsia that leads to complete blindness, from a growth in the anterior or posterior optic chiasm. 3. Permanent visual defects originating in the eye itself. (a) Enlargement of the blind spot in consequence of papillitis. (b) Contraction of the visual field occurring suddenly in one of the principal meridians of either eye, and in its further course distributing itself irregularly. (Hirschberg ascribes this to a sudden cutting off of the blood-supply to the peripheral retinal arteries.) (c) Diminution of central vision from anatomical changes at the macula (small hæmorrhages, exudations, or detachments), or greater loss of central vision from interruption of nerve-fibres entering the macula. As disease progresses, the perceptions of form and color are lost, the perception of light persisting longer, and finally ending in total blindness.

Parasitic Cysts of the Brain.—Mudd^{5 Apr.} relates the history of a girl, 12 years old, who entered the hospital with symptoms of partial paralysis of the left forearm and hand, constant severe headache, and choked discs. On examination of the skull, a small elevation of bone about the size of a silver quarter, distinctly separate from the skull and easily movable, was found a little above the left ear in the parietal region. The diagnosis was that of a tumor beneath this portion of the skull. An operation was done, and from the subarachnoid space a number of small cysts were removed. The excavation left was as large as a hen's egg. The patient made a good recovery, though vision was not perfectly restored. The cysts were found, microscopically, to have been due to echinococci. Matignan^{188 June 27} reports a case of right hemiplegia with aphasia, due to an echinococcus cyst occupying the region of the first and third left frontal convolutions. The right sphenoidal lobe was also invaded by one of these growths. Jaccoud,^{17 Nov. 21, '91} in a clinical lecture on coma, gives the history of a patient who suddenly developed a condition of coma. Subsequently, other symptoms, among them elevation of temperature, developed, suggesting a tubercular meningitis. Typhoid fever was considered as a possibility, at one time, during the progress of the case. At the autopsy two cysts due to cysticerci were found in the substance of the right hemisphere of the brain. Simmonds^{69 Jan. 28} describes the pathological findings in the case of a woman, 72 years old, who died of

supposed marasmus and senile dementia, whose brain was found to have been the seat of several cysts, in which were found the hooklets of the *Cysticercus cellulosus*. Parry²⁶⁷_{Aug.} relates the case of a boy, 9 years old, whose illness began with headache, vertigo, and dimness of vision, with occasional vomiting. Some months later hemiplegia occurred and he became totally blind, the ophthalmoscope showing double atrophy. Examination of the shaven skull showed no abnormal appearance, but percussion gave forth a peculiar hollow note over the upper right Rolandic area an inch and a half to the right of the median line. Upon the above facts a diagnosis of *hydatid* cyst of the right motor region was made and found to be correct (!) upon trephining. The case progressed favorably up to the nineteenth day after the operation, when the temperature rose quite suddenly to 104° F. (40° C.) and the patient died. At the autopsy the cyst-wall, the contents having been evacuated at the operation, was found to have occupied the white substance of the right hemisphere beneath the posterior part of the ascending frontal and the ascending parietal regions. Rothman reports a case of hydatid cyst of the cerebellum,—a detailed reference to which will be found in the paragraph on tumors of this region. These cases confirm the well-known fact that cystic growths in the brain are quite infrequently attended with diagnostic symptoms, and often exist for years without any symptoms at all.

Tumors of the Cortex.—Fourteen cases of new growth located in the cortex or involving the gray matter, as demonstrated either at autopsies or through operation, are reported by Veer-
voutet,¹²⁷_{May 12} C. P. Barker,¹_{June 25} Hingston,²⁸²_{June} Poirier,⁴⁵¹_{Aug.} Willett,²_{May} Cooke,²_{May 23} Mills,²⁴²_{Dec., '91} Hurd (two cases),²⁶²_{Apr. 25} Picchini,¹⁷_{Aug. 20} Wilson,⁶_{Feb. 27} Pettitt,²_{Mar. 12} Hitzig,⁴_{No. 29} and Handford.⁴⁷_{Parts 2, 3, '91} An analytical study of these cases present some interesting facts, though the number is rather small for practical deductions of positive value. Pathologically, these cases were sarcomas in 7, cysts 2, tubercular 1, fibroma 1, angioma 1, scirrhous 1, not stated 1. As regards symptoms, headache was marked in 9, absent in 3, not mentioned in 2. In 2 cases the pain and tenderness of scalp corresponded exactly to the location of the new growth (Hingston's and Hurd's), and in Hingston's case it proved a reliable guide for successful operation. Convulsions were present in 10 cases; they were absent entirely in 3

cases, and in 1 (Cooke's) there were no true convulsions, but peculiar movements of the masticatory muscles were present, the tumor involving the face-centre. The convulsions were Jacksonian in character and of localizing value in 7 cases. Paralysis in some form was present in 10, and in 6 of these the paralysis and epilepsy were in harmony and afforded data for exact localization. Optic neuritis is mentioned as present in only 5 cases. Sensation was positively affected in 4. In 3 tact was quite perceptibly diminished (Barker's, Hurd's, and Handford's). Handford's patient presented also the interesting phenomenon of disassociation of temperature sense, retaining his perception of cold, but showing marked loss of perception of heat. He also suffered from pains of central origin. The lesions in this case were multiple, the largest being in the upper ascending frontal convolution. In one case (Wilson's), tact, pain, muscular and temperature senses were all noticeably impaired, the tumor being in the lower ascending frontal and ascending parietal region. In 3 cases, although the tumors were in each instance in the Rolandic motor area, there were no corresponding convulsive or paralytic symptoms (Willett's, Picchini's, and Pettitt's). The duration of symptoms is mentioned in 6. In 1 case they were present nine years, in 3 two years, in 1 one year, and in 1 seven months. Of these 14 cases, a correct diagnosis of tumor was made in 10, and in 6 of these it was correctly localized also (Hitzig's, Veervouet's, Barker's, Hingston's, Poirier's and Wilson's). Three of these were successfully operated upon, and in the other 3 operation should have been done, as the tumors were correctly localized and the autopsy showed that they might have been easily reached and removed. Eleven of these tumors were located in the ascending frontal or ascending parietal region, or both, while one (Cooke's) also involved Broca's convolution, though no aphasia was present. In 2 cases (Pettitt's and Handford's) the tumors were multiple. In 2 cases of cancerous tumors the brain-growth was secondary to similar growths elsewhere, of the breast in Wilson's case, and the kidneys in Veervouet's. Zenner ⁵³_{Apr. 6} reports a case of tumor of the leg-centre with symptoms present which justified the diagnosis, but without autopsy.

Tumors of the Frontal Lobe.—Two cases presenting symptoms quite typical of tumor in this region are reported by Fer-

rier, ⁶_{June 4} and Lloyd, ²⁴²_{Jan.} Ferrier's case was that of a man, 40 years old, whose symptoms were, when admitted to the hospital, marked failure of memory, inability to concentrate his energies in sustained effort, tendency to fall asleep, with incontinence of urine. He appeared healthy, but had a dull, vacant expression, and when left alone took no notice of his surroundings and required considerable rousing before he could be made to answer questions. His replies to questions, however, were always intelligent when finally made. There was no motor paralysis, though apparently a slight weakness of the right angle of the mouth. Common sensations could not be well tested on account of the patient's mental state, but vision and hearing appeared normal. The knee-jerks were present and equal. Ophthalmoscopic examination showed typical double optic neuritis. Although he did not complain of headache, he generally winced when severe pressure was made over the left fronto-parietal region. The patient's condition underwent little apparent change for several months. He became somewhat more stupid and apathetic, and his gait grew tottering as he wandered aimlessly about the ward. Five months after admission he developed symptoms of influenza and died. At the autopsy the anterior portion of the left frontal lobe was found occupied by a large tumor (fibrosarcoma), which had pushed backward and displaced the frontal lobe. It had originated in the dura, probably from trauma received several years previously. A correct diagnosis had been made during life of tumor of the frontal lobe, though Ferrier had been unable to decide whether it was superficial or deep, and involving the corpus callosum. An operation would have been done but for the death of the patient unexpectedly from an intercurrent malady. The autopsy made evident the fact that the tumor would have been easily reached and enucleated. The mental symptoms observed were exactly identical with those produced in monkeys by experimental extirpation of this region. Lloyd's patient presented many points of similarity to Ferrier's case, although many more active symptoms were superadded, the lesion being a destructive one. The patient, a man 32 years old, gave a history of syphilis five years previously, followed three years later by a convulsion. Soon afterward he began to suffer from constant headaches. When admitted to the hospital he had a swelling of the soft tissues of the brow and eyelid of the right side, not explained

by any evidence or history of trauma. He had no form of paralysis, but the swollen spot was excessively sensitive and he complained of pains in both shoulders. He cerebrated slowly, did not make known his wants, and unless addressed he did not speak. He seemed to comprehend questions, but did not answer until after a long interval, giving the impression of obstinacy. His answers were invariably correct, but given in very few words. His actions seemed entirely automatic, and he passed urine and feces with a total disregard of time and place. Later he developed paresis of the superior rectus, nystagmus, occasional muscular rigidity, and the fits continued at frequent intervals. Ophthalmoscopic examination gave negative results. The swelling was opened and found to contain pus and caseous material. It healed well, but the scalp remained somewhat tender. The cerebral symptoms continuing, it was decided to trephine, but, symptoms of commencing tubercular disease of the lungs having been observed, the idea was abandoned. He died of rapidly-developing phthisis. At the autopsy a caseous tumor was found over the interior portion of the second frontal convolution. In an exactly symmetrical position on the left side was found a similar though much smaller lesion. A third similar and still smaller growth was found over the inferior parietal convolution.

Armstrong¹²_{July} reports a case of sarcomatous tumor of the left frontal lobe, found post-mortem in a patient whose symptoms during life were general tremor, in type resembling paralysis agitans, with marked stupidity and with indifference to his surroundings. C. S. Bull¹_{Jan. 9} relates the history of a patient, male, aged 45, who consulted him for a defect of vision which interfered with reading. He also stated that he had been affected with attacks of an ill-defined character which were interpreted by Bull as probably *petit mal*. Examination of the eyes showed astigmatism and myopia, with paresis of both internal recti and marked ptosis of the right eyelid. In the right eye there was moderate neuroretinitis without much swelling of the disc, but with two or three small hæmorrhages in the retina near the discs. A history of syphilis led to treatment with mercury and iodide, which caused a slow disappearance of the neuroretinitis and ocular-muscle paralysis. He began to have attacks of vertigo, however, and developed an increasing hemianæsthesia of the left side, which remained up to the

time of his death, which occurred quite suddenly. Motor power and vision were not impaired, nor was his intelligence affected during the latter part of his illness except in an occasional lapse of memory. The autopsy showed, in the middle of the left frontal lobe, at its anterior portion, a tumor of large size, gliosarcomatous in character. Collier²_{Nov. 4, '91} reports a case of tumor in this locality, but as it also involved many other structures its value is practically slight. It is worthy of comment, in connection with Bruns's statement that ataxia of the cerebellar type is a common symptom in tumors of the frontal lobes, that it is not mentioned as having been present in any of these cases.

Tumors of the Centrum Ovale.—James Rorie¹⁶⁶_{July} reports the case of a woman, 60 years old, admitted to the Dundee Lunatic Asylum with symptoms of paralytic dementia, the autopsy showing two myxomatous tumors symmetrically located in the centrum ovale of each hemisphere. The symptoms observed were silly childishness of manner, loss of memory, stupidity, drowsiness and general weakness of a paretic character, especially in the lower limbs. Tactile and special senses were normal. A peculiar symptom was noticed in a sudden loss of equilibrium, with falling to the floor if any one passed quickly before her. Aikens³⁹_{Apr. 1} reports the case of a male patient who complained of headache of an intense character with somnolence, but with no other symptoms for a long time. Later, some inco-ordination with weakness of the left arm appeared, with slight loss of power in the left leg. At the autopsy a tumor (glioma) was found in the right centrum ovale involving the outer two-thirds of the lenticular nucleus, but not affecting the internal capsule. Campbell⁶_{Feb. 13} describes the symptoms and pathological findings in a case of brain-tumor of apoplectic origin occupying the central substance of the right hemisphere, involving the gyrus fornicatus and corpus callosum. It was as large as an orange. The symptoms for nine years were exclusively mental: a morose, sullen manner, with much depression and occasional acts of violence. Three months before his death he had a paralytic stroke affecting the *right side*, and a week later a convulsion occurred, after which the paralysis became much more marked, remaining so until his death. The author does not appear to have been cognizant of the fact that a lesion of the *right* hemisphere producing *right* hemiplegia is rather a remarkable one, as he does

not allude to it at all except in a simple statement of the occurrence. The pathological examination of the tumor-mass was made by Joseph Coats, who pronounced it a fibrous structure of indefinite histological character, but evidently a blood-clot in process of organization. Laurence Humphrey²_{Aug. 27} reports a case of glioma of the left corona radiata invading the gyrus marginatus and gyrus fornicatus, without marked sensory defect. The symptoms were left-sided headache, vertigo, nausea, weakness of right arm and leg, followed by paralysis and mental defects. The only sensory disturbance noted was quite slight diminution of tactile acuteness at the wrist and ankle of the paralyzed side. Pain, temperature, and muscular sense were good, and tactile sensation was normal except as stated. The tumor occupied the posterior part of the frontal and anterior part of the parietal lobes and extended downward to the left lateral ventricle, destroying the anterior and middle part of the gyrus fornicatus and a part of the marginal convolution. The left half of the corpus callosum was also destroyed and the growth had entered the lateral ventricle. Dana²⁴²_{Mar.} reports a case of tumor of the third ventricle and optico striata region with symptoms of marked stupor and drowsiness, slight left hemiplegia, intense headache, vomiting, insomnia, and ataxic gait. No defect of sensation or of eye-muscles. The paper contains a full bibliography of the subject. Masius²⁹³_{Mar.} also reports a tumor (sarcomatous) of the third ventricle, while Kruse⁶⁹_{May} has reported a case of tumor of the white substance of the right hemisphere, of which, however we have seen only the reference.

Tumors of the Pons.—G. Durante⁷_{July 6} gives, with elaborate detail, the findings in a case of fibrosarcoma located at this point, and causing the death of a man, aged 71, who was under observation some twelve or fifteen months. The tumor, about as large as a prune and of an irregular, ovoid shape, attached to the pia mater, and, through the vessels, to the cerebral structure, rested upon the left side of the pons, and flattened the protuberential extremity of the left cerebral peduncle and superior cerebellar peduncle. Lower down the medulla oblongata seemed smaller on the right than on the left, and there was partial degeneration of the crossed and direct pyramidal tracts. The symptoms did not, by any means, fully correspond with the character and location of the lesion. There was gradually progressive paralysis of all four ex-

tremities,—which became complete in the lower limbs, but not in the arms,—double amaurosis, and, finally, absolute blindness, severe headaches referred to the frontal region, but absolutely no defect of common sensation whatever, although the sensory tracts were involved to a marked degree. Diller ⁵_{Nov.} reports a case of tumor, sarcomatous in character, situated upon the left side of the pons, which developed as a result, apparently, of trauma. The symptoms were those of a lesion of the base, and more especially of the pons, or medulla region, but the site of the trauma was marked by a bony exostosis, which tended to throw an element of doubt on the question of localization. It was decided, in view of the urgency of the patient's condition, to do an exploratory trephining, and at the same time tap and drain the ventricles for the relief of intra-cranial pressure. The patient survived the operation twenty-four hours.

Tumors of the Pineal Gland.—Zenner, ⁹⁸_{July} in a clinical paper containing a report of a case of this character, with autopsy, quotes the bibliography of the subject, and gives an analysis of the symptoms in nine similar cases, as follows:—

The ages so far as given were 39, 19, 50, 19, 28, 31, 32, and 25 years, respectively. The tumors were described as sarcoma (2), glioma (2), carcinoma (2), psammoma (1), and cyst (1). In 5 cases the headache was chiefly occipital; in 2 it was chiefly in the anterior part of the head. In 7 cases the intelligence was more or less impaired, if not altogether lost. In only 1 was it spoken of as normal. In 7 cases there was blindness, or much impairment of vision. In 3 of these cases it is explicitly stated that the loss of vision was speedy. Deafness was only mentioned in 2 cases, in 1 of which it was only in one ear. Inability to stand or walk, or difficulty in walking, was present in 6 cases. Epileptic or tetanic spasms were reported in 6 cases. In one instance there were no seizures of this character.

Difficulty in swallowing was reported only in Schulz's cases. Here it was said that the patients could not swallow with head erect. It was necessary to flex the head forcibly upon the chest, so that only fluids could be swallowed, and the latter were sucked through a glass tube. Speech was affected in 2 cases. Hydrocephalus is mentioned as present in only 5 cases, though it was probably present in others. The tendon-reflexes were exagger-

ated in 2 cases. In most of the 9 cases the external muscles of the eye were involved. In 2 the eyes were turned downward and to the right, without actual paralysis. In 2 there was exophthalmos. Nystagmus was present in 3 and ptosis in 1 case. In several there was paresis or paralysis of the 4th, 6th, or 3d. Zenner's patient was a boy 13 years old, whose symptoms were headache, vomiting, ataxic gait, early blindness, partial deafness, fainting spells, defective speech, difficulty in swallowing, incontinence of urine and feces, but no motor or sensory paralysis, double optic neuritis, hydrocephalus, and lost intelligence. The tumor lay in the ventricles, and was a gliosarcoma. The author attached no importance to the fact that no ocular paralysis was observed in his case, since the disease had so far advanced as to make such observations impossible.

Tumors of the Pituitary Body.—Anders and Cattell²⁴²_{Jan.} report a case of hæmorrhagic tumor of the pituitary body. The first symptoms suggestive of the commencement of the intra-cranial trouble antedated the fatal termination of the case by some sixteen years, and were noticed shortly after an attack of typhoid fever. These symptoms were vertigo, vomiting, and sensations of falling associated with transient unconsciousness. Subsequently, though at a late stage, headache, transient internal strabismus, and delirium, with convulsion, occurred. Two associated conditions which were present in exaggerated degree were profound anæmia and general alopecia. Whether these two symptoms were accidental or related to the tumor as a cause could not, of course, be determined. In the discussion of the paper, Mills referred to an essay upon the pathology of this body by Michel, who reported a most interesting example of disease affecting it. Mills summarizes our knowledge of the functions of the pituitary body as follows: 1. That the pituitary body, however largely developed in some animals, is not a primary division of the brain, or a true encephalic ganglion, since its complete destruction is never accompanied by loss of intellect, motion, or sensation, beyond what may be satisfactorily accounted for by the necessary pressure which the morbid growth exerts upon more essential parts of the encephalon. 2. That from several of the morbid processes enumerated in this memoir we have strong proof of the identity of the nature of this hypophysis with certain so-called vascular glands, such as the

thyroid, thymus, spleen, and supra-renal capsules. 3. That while the diagnosis of its morbid conditions is rendered somewhat obscure from the absence of any ascertained functions of the part, yet their almost constant connection with the simultaneous production of amaurosis in both eyes, with absence of symptoms of cross-paralysis, will indicate the seat of the disease, when compared to morbid states of either hemisphere. 4. That the long continuance of disease in this situation may propagate inflammatory action to neighboring parts, followed by apathy, somnolence, syncope, cophosis, and other symptoms obscuring diagnosis.

Tumor of the Base.—Christian ⁹⁴_{July} relates the case of a patient who, for five or six years, had constant nocturnal hallucinations. His aspect was that of dementia. The patient did not drink. At the autopsy a tumor was found resting upon the sella turcica and compressing the optic nerve, which fact, Christian believes, explains the hallucinations. He does not accept Briaud's hypothesis of alcoholic origin in such cases.

Cerebellar Tumors.—The most important paper of the year bearing upon this subject is by Williamson. ⁵_{Aug.} The paper is based upon two clinical examples with autopsy. Both cases presented, during life, the characteristic clinical symptoms of tumor of the cerebellum. In both cases, at the autopsy, the symptoms were found to have been due to cysts, which appeared at first to be simple; but on careful examination, microscopically, of numerous sections of the cyst-walls they were found to be really the results of new growth, gliomatous in one case and sarcomatous in the other. Williamson believes that the great majority of cysts found in the cerebellum are degenerated tumors. He bases this belief upon the following reasons: The clinical history in such cases is that of tumor. There are several recorded cases, besides the two reported by the writer, in which what have been regarded as simple cysts have been shown, on careful examination, to contain, in the wall, a mass of new growth. In one instance such a mass was found measuring only three-thirty-seconds by three-sixteenths of an inch. It is a well-known fact that intra-cranial tumors are exceedingly liable to undergo degeneration. He argues that if such tumors can undergo degenerative changes to such an extent as to leave only microscopically small evidences of a former new growth, it is perfectly reasonable to assume that every evi-

dence of a former tumor can disappear, leaving only a simple cyst. The occurrence of such cysts in the cerebellum suggests the possibility of treating some of the supposed cases of cerebellar tumor by aspiration and drainage. Operations for the removal of cerebellar tumor are notoriously unsuccessful for several reasons; and if there be any reasonable hope that a cyst is present, naturally the treatment suggested would be adopted. Nor is there any reason why such treatment should not be extended to the cerebrum. This was actually done in a case, which Williamson quotes as recorded by Oppenheimer and Kohler, of Jacksonian epilepsy in which, at the operation, a cystic glioma was found in the right motor area. The superficial part only of the growth was removed and the cavity drained, with the result that the left arm, which had been paralyzed, regained power, and the patient otherwise improved so much that he was discharged in good health three months after the operation.

Four out of ten other cases of cerebellar tumor recently reported illustrate the tendency, quite common in such growths, to undergo cystic degeneration, and are of considerable interest in connection with Williamson's paper. One of these cases is reported by Morton Prince,⁹⁹_{May 26} another by J. S. Bury,⁹⁰_{June 10} the third by Knapp,²⁴²_{Feb.} and the fourth by Rothman.⁴¹_{July 14} In Prince's case, which was correctly diagnosed and localized during life, the cyst was in the right lobe, the size of a hen's egg, and filled with pale, limpid serum. The pathologist who examined the specimen was unable to determine its exact mode of origin, but expressed the opinion that it was probably due to a hæmorrhage, an hypothesis certainly no more plausible than that of new growth. Prince expresses regret that an operation was not attempted. In Bury's patient, a girl 21 years old, whose active symptoms extended over a period of sixteen months, and were characteristic of cerebellar tumor, the autopsy showed a large vascular neoplasm occupying the anterior half of the right side of the cerebellum. Projecting from the inner end of this tumor into the fourth ventricle was a cyst representing a beginning tendency to degeneration, which might have subsequently involved the whole mass. In Knapp's case, the tumor, which was of a semi-solid consistency in its centre, and evidently in process of degeneration, was found in the left lobe of the cerebellum. The symptoms were somewhat confusing

in Knapp's case, one of them, headache, having been especially conspicuous and so severe as to have called for trephining for its relief. This is the seventh recorded operation of this character, done solely for relief of a symptom, according to the statement of the writer.

Rothman's case was one of echinococcus cyst of the left lobe of the cerebellum, intruding on the fourth ventricle. In three other cases of tumor of the cerebellum and fourth ventricle, of which the hospital records gave authentic histories, the patients had fallen into states of sudden collapse, with rapidly-ensuing death, having been previously in excellent health. McWeeny²_{June 11} reports a case of pedunculated sarcoma of the cerebellum which is of interest. The tumor-mass was found on the right side of the under surface of the cerebellum, pressing closely against the crus, pons, and medulla, while its peduncle ran up into the white centre of the cerebellum, starting apparently in the upper surface of the quadrate lobule. The symptoms were headache, vomiting, debility, insomnia, loss of hearing and taste on the right side, with enlargement of right pupil and a cough. There was no optic neuritis and no motor paralysis of face or extremities. The temperature rose occasionally to 101° F. (38.33° C.). Ataxia is not mentioned as having been present. The symptoms would seem to have pointed much more strongly toward a leptomeningitis of the base, but no evidence of such meningitis was found. Other clinical papers upon cerebellar tumors are by Bristowe,⁴⁷_{Pts. 2, 3, '91} Zabala,⁴⁴_{Feb.} and Preston,⁹⁸_{Apr.} who reports three cases, with autopsy. In Bristowe's patient, in addition to the cerebellar lesion, there was a tumor in the pons, which was responsible for the symptoms observed during life, the more characteristic symptoms of cerebellar disease having been absent.

An analysis of these 12 cases of cerebellar tumor shows, as regards symptoms, headache present in 12, vomiting in 5, optic neuritis in 8, ataxia in 10, motor paralysis (usually of some cranial nerve) in 6, sensory disturbances in 6 (3 of which were of muscular sense), and mental changes, decided in character, in 4. The tumor was found in the vermis in 2 cases, in the right lobe in 3, and in the left lobe in 4. The character of the new growth was sarcomatous in 4, cystic (secondarily) in 6, tubercular in 2, gliosarcoma in 1, and vascular in 1.

MENINGITIS.

Cerebro-Spinal Meningitis.—Monk²_{July 30} describes an epidemic of cerebro-spinal meningitis in a Shropshire village in May and June, 1891, which affected children only. There were forty-three cases in a total population of about 250 people. The disease was of an exceedingly mild type, though the symptoms were quite well-marked. Only two cases ended fatally. The symptoms were: suddenness of onset, vomiting, vertigo, intense headache (usually occipital); stiffness of the neck-muscles and of the back; shivering, followed by sweating and fever. Constipation was a constant symptom, and drowsiness, cutaneous hyperæsthesia, and screaming fits were often present. The origin of the epidemic was traced to the village school, where it was learned that a few weeks previously a number of the children had been affected with a sharp diarrhœa. It was found that the same children affected with meningitis had been victims of the preceding diarrhœa. Disinfection and closing of the school temporarily caused a cessation of the epidemic. Unfortunately, no post-mortem was made in either fatal case. Lemoine²⁴³_{July} describes an epidemic of cerebro-spinal meningitis which occurred in two companies of French artillery with a mortality of 50 per cent. He expresses the opinion that the disease is not only infectious, but contagious. Another French writer³⁷⁸_{Apr. 21} summarizes the various microbic agents capable of producing the affection as follows: The bacillus of typhoid; the streptococcus of erysipelas; the gonococcus of gonorrhœa; the infectious principle of rheumatism plus a specific microbe which is yet hypothetical. He does not mention the pneumococcus of Fränkel, though abundant and positive evidence of its causative influence is adduced by others, among them Ghika,⁷_{Feb.} Sabrazès,¹⁸⁸_{Nov. 29, '91} Mills,⁸⁶⁸_{July 16} and Comibas²⁴_{June 5} (three cases). The bacteriological examinations of these four were, however, made in cases of the sporadic variety. Obeke,⁴_{No. 41} on the other hand, as a result of bacteriological investigations in two fatal cases of purulent cerebro-spinal meningitis, found chain-cocci which were cultivated upon agar-agar, but did not produce a second generation. His conclusion is that the disease is not, as has been claimed, a masked pneumonia, but is an independent disease. Stiénon⁸⁶⁸_{Feb. 27} reports a case due to the gonococcus and quotes the literature of the subject, citing similar cases by Hayem and Parmentier, Stanley, Gull,

Chavrier, Tissier, and others. Sporadic cerebro-spinal meningitis is the subject of a paper by Trevelyan,⁴⁷ Spring No. who publishes the records with analytical comments of thirteen cases with autopsies. A fairly full bibliography adds to its value. Clinical papers upon cerebro-spinal meningitis ascribed to influenza are contributed by Plummer,² Sept. 10 Bolger,² May 7 Trevelyan, and Sabrazès. Two cases of cerebro-spinal meningitis of simultaneous development, ending fatally within three days, are reported by Rennie.²⁶⁷ Apr. The autopsy showed, in both cases, in addition to the lesions of the meningitis, extensive adhesions of the pleura and consolidation of the lungs. A history of insignificant trauma preceding symptoms by several weeks was present in both cases, but was considered as having no probable relationship as a cause. Two cases of cerebro-spinal meningitis with recovery are reported: one by Armstrong,⁶ Aug. 20 the other by McLachlan.²¹³ Aug.

Tubercular Meningitis.—Goodall⁴⁷ Summer and Autumn Nos., '91 records some original observations as to morbid changes which occur in the cortex cerebri in tubercular meningitis, as shown by the fresh method of examination (ether, frozen brain, aniline blue-black). He finds in the cortex, just under the meninges, very many small round-cells and also numerous flask-shaped cells which give off many fine processes, forming a mesh-work with neighboring cells. These cells, as some of their processes reach the meninges, explain the adherence of the pia mater to the brain, to which also the vessels which dip in are closely bound. These cell processes cannot be traced deeper than the third layer of cortical cells. The minute vessels are dilated. In many specimens the nerve-cells of the second and third layers are stunted and atrophied, often only the nucleus being left. As these degenerated nerve-cells are always in close contact with the spindle-cells, which are probably to be looked upon as scavenger-cells, it appears that the degenerate nerve-cells are taken up by them. Prioleau¹¹⁸ May has observed certain changes in the eyes not described in any text-book or treatise upon the subject. These changes involve nutrition and sensation. The former is indicated in a loss of polish, with slight opalescence of the cornea, with a diminution of intra-ocular tension, which is in relation to the aqueous humor. The cornea becomes anæsthetic comparatively early in the disease. Krauss²⁴² July records a most remarkable instance of heredity predisposing to nervous disease, in the family of a tailor

whose wife had given birth to five children, all of whom were microcephalic at birth and died, in early life, from tubercular meningitis. The mother was herself microcephalic and had an intelligence much below mediocrity. The father had phthisis. The mother's parents were still living and healthy, but, out of eleven of their children, six died of convulsions, one of croup, and only four lived to adult life. A case of cerebro-spinal meningitis of tubercular origin, beginning in the internal surface of the dura mater of the cord and only involving the bone secondarily, is reported by Bewley.² June 11 Springthorpe²⁸⁵ July 15 reports a case of acute miliary tuberculosis invading the basal meninges, following an attack of influenza in an adult. Two other cases of tubercular meningitis occurring in adults are reported by Gussenbauer⁸ Sept. 16 and Jacoud.³ Nov. 25, '91 A case secondary to Pott's disease is recorded by Mathieu.²²⁰ July 15 Other papers upon the subject of tubercular meningitis are by Atchison,⁸⁶ Mar. O'Donovan,¹⁰⁴ June 25 Heryng⁵⁷ Apr. 3 Drappier,²²⁰ Dec. 18, '91 Mertz,⁴¹ Aug. 2 and Meusi.⁹⁹⁷ Feb. 11

Traumatic Meningitis.—Lombroso, of Florence,⁶⁸ Apr. has published a monograph upon chronic hæmorrhagic leptomeningitis, with special reference to the differential diagnosis and pathological changes. Eight cases are described and two autopsies given in detail. The symptoms varied according as the convexity or base was involved. The beginning of the affection is usually obscure. Headache, which gradually increased in severity, was noticed early. Later, wandering pains, especially in the shoulders and arms, accompanied by general weakness, were noted. Vomiting was often present with the headache. Later, transient paresis of an extremity, sensitiveness to light, anæsthesia, aphasia, cerebral ataxia, cramps, and convulsions were observed. There was no fever, and mental disturbance, when present at all, was that of simple hypochondria. The case might pass into coma and death, or recovery slowly take place. The author recommends blisters and galvanism to the head (1 to 5 milliampères) in the treatment. In the differential diagnosis cerebellar and cerebral tumor, hysteria, and tubercular meningitis are mentioned as most likely to confuse. Drappier²²⁰ Mar. 18 reports a case of traumatic meningitis occurring in a child 5½ years old. Burroughs¹ Jan. 9 relates the history of a patient who developed a fatal meningitis from a trauma received five weeks previous to the appearance of the first symptom. Other

papers upon meningitis of miscellaneous types are by Mills,²⁴²_{Dec., '91} whose patient presented athetoid spasm, myotonia, and diffuse bilateral sensory disturbances from double-convexity meningitis; Springle,²⁸²_{Jan.} who reports a case secondary to ear disease; Newton Pitt,²_{Nov. 7, '91} Carter,³²_{June} Rogers,¹²¹_{Dec., '91} and Wilson¹⁷⁶_{Apr.}; the two last reporting cases of simple meningitis with recovery. No new therapeutic suggestions of any value have been added to our resources in any form of meningitis during the year.

EPILEPSY.

Etiology and Pathogenesis.—Luys and Voisin,²⁴_{June 26} relate the histories of four cases, with autopsies, showing that, in epilepsy presumably due to lesions in the bulbar region, the lesion is not exclusively of this region, but the cerebellar substance proper is often implicated, together with its peduncles and the gray centres with which they are connected. Pierre Marie,³_{July 13} writing of so-called idiopathic epilepsy, reiterates his former view, that it is nearly always of infectious origin, its cause being exterior to the subject and originating after conception,—a doctrine which is in antagonism to hereditary transmission. The therapeutic corollary to this view of etiology is that toxins of microbic origin should be utilized in treatment, and the author suggests cantharidate of potassium or other derivatives of cantharides. Herter and Smith,¹_{Aug. 20, '27; Sept. 3} have been pursuing a somewhat similar line of investigation. They have made an exhaustive analytical study of the urine in thirty-one cases of epilepsy, with the object of determining the causal relationship of toxic agents in the blood, developed through intestinal putrefactive changes, to the epileptic attack. This line of inquiry was suggested by Haig's statement, that *grand mal* seizures were determined by an excess of uric acid in the blood. Urea, uric acid, the sulphates and the oxie acids were especially investigated. The authors found that, in *grand mal*, uric acid was found in excess only after an attack, and then, presumably, only as a result of the conditions which precipitated it, or of the seizure itself. In the cases of *petit mal*, a continuously high percentage of uric acid was found, which appeared to be related to the cause of the seizures. The presence of symptoms of marked intestinal putrefaction, as shown by urinary analysis in an excess of ethereal sulphates, with the fact that such evidence of

putrefactive changes was greatest at the time of the attacks, forcibly suggested the probability that the epileptic seizures were sometimes the consequence of toxic substances in the blood, the product of intestinal putrefaction. Additional evidence of a relationship existed in the fact that influences which controlled the putrefaction coincidentally controlled the seizures. The paper represents a very thorough study of the subject from a clinical stand-point.

Gutnikow⁶⁸⁵_{Mar.} has been experimenting upon animals (guinea-pigs) by the rotary-table method, with a view to the determination of the influence of anæmia and hyperæmia of the brain in producing epileptic attacks. He succeeded in convincing himself—though the doctrine is not now generally accepted—that cerebral anæmia positively predisposed to cerebral seizures, while hyperæmia did not; conclusions which are in accord with those of Küssmaul and Tenner, based on somewhat similar experiments. Victor Horsley,²_{Apr.2} in an address before the Cardiff Medical Society, entitled “The Origin and Seat of Epileptic Disturbance,” sums up his conclusions as follows: “Whatever be the point which the epileptogenous agency first attacks, we must conclude that the principal seat of the disturbance of a general or idiopathic fit must be the cerebral hemispheres, and especially their cortical mantle; further, that the condition of the cortex during the attack is one of congestion, and not anæmia; and, finally, that, in all probability, this portion of the encephalon is actually the place of origin of the disturbance.”

Chas. Mercier,²_{Apr.16} in a criticism of Horsley's lecture, discusses particularly the succession of tonic and clonic movements in epilepsy, agreeing with the conclusion of Horsley, that they are of a common origin. This opinion Mercier advanced as long ago as 1881. From a clinical study of these spasmodic movements he has observed that “the magnitude of the muscular contractions varies inversely as the rapidity of their succession,” and that “as the interval between the shocks increases, each successive shock, when it does come, becomes more powerful.” The phenomenon here described is common in the physical world, due, in every instance, to the continuous accumulation of force opposed by a constant resistance. This hypothesis the writer believes to be an important basis for theories of nervous discharge and inhibition. A. Pitres,²⁵_{Jan.}

writing of partial sensory epilepsy, states that, as in Jacksonian epilepsy, it is often the result of irritative lesions of the cortex, located, in such cases, in the temporo-sphenoidal convulsions. The principles of treatment are the same as in motor epilepsy. C. R. Illingworth²²_{Jan.15} contributes a paper in support of the theory of venous stasis as the *fons et origo mali* in epilepsy. Brown-Séquard,³_{Sept.21} commenting upon the form of epilepsy induced in guinea-pigs and other animals by the excitation of a peripheral nerve after the head of the animal has been removed, remarks that it is identical with epilepsy in man. He re-iterates his well-known opinion that the seat of epilepsy is not especially in the brain, but that all parts of the nervous system, central and peripheral, may produce it. Ott,²⁴²_{Sept.} in a paper upon absinthic epilepsy, designates the "cortico-frontal" region as the site of origin. A paper by J. J. Putnam,⁹⁹_{Jan.7} upon the relation of epilepsy to head injury, reflects with fair accuracy the general consensus of opinion of the conservative neurologists upon the subject. Wildermuth⁵⁷_{Aug.21} has examined the brains of a large number of epileptics and found marked variations from the normal in the size and shape of the convolutions and sulci. Most often the variations approached the type of some lower animal. Trowbridge⁹⁸_{Feb.} discusses the points of resemblance between epilepsy and chorea, and reaches the following conclusions as to their relationship: 1. Both are hereditary; choreic parents may have epileptic children, and *vice versâ*. 2. In both diseases convulsive movements are present. 3. The two diseases may co-exist in the same patient or either may be succeeded by the other. 4. Both affect the mind to some degree, and, in both, the mental affection is similar. 5. Both diseases are probably due to lesions of the brain only, and both are chronic disorders. [While these conclusions are, in the main, in accordance with general observation, certain of them are open to criticism as being opposed to clinical experience. There is little evidence of a direct heredity in chorea proper, although it is unquestionably an evidence of a neurotic ancestry. In Huntington's disease, or so-called hereditary chorea, the disease is, of course, hereditary; but Sydenham's and Huntington's chorea are so dissimilar, in many of their symptomatic and etiological attributes, that it is a clinical error to classify them as one. To the conclusion that ordinary chorea is a chronic disorder, I am sure the

majority of clinicians will take exception. The disease, as observed in children, is conspicuously self-limited, although a tendency to relapses, at certain seasons, is equally conspicuous. Much of the confusion arising from a consideration of chorea is due to a culpably loose and inefficient nomenclature, three at least and probably four conditions of disease, differing from each other radically in many important respects, being classified under one common generic title.—Ed.]

Symptomatology.—Bourneville, ⁴¹_{Sept.5} as a result of repeated tests, confirms Charcot's observation, that there is a rise in temperature during the epileptic attack. Féré ⁷³_{Jan.23} records the development of four circular and characteristic spots of alopecia circumscripta on the scalp of an epileptic immediately succeeding a severe seizure. Within six weeks, without any treatment, the hair had all grown back. Féré had frequently observed this condition in the scalp of epileptics. Voisin and Peran ⁹⁴_{May} conclude, from a series of researches, that transient albuminuria occurs as a sequence of epileptic seizures in about 50 per cent. of all cases, the amount being generally proportionate to the intensity of the fit. Its maximum excretion takes place, as a rule, in two hours after the attacks. In the status epilepticus, the constancy of albuminuria is such that eclampsia and epilepsy cannot be differentiated. [A case illustrating such difficulty in diagnosis, in conditions other than status epilepticus, is now under observation in my clinic for nervous diseases at the New York Polyclinic. The patient, a young man, has for two years been subject to occasional convulsions. The first attack occurred on the street, the patient being taken to the hospital, where he remained two or three weeks on account of a hemiplegia, with blindness, which resulted from the seizures. Examination of his urine showed an enormous quantity of albumen (over 60 per cent.), there was œdema of the face and ankles, and the case was diagnosed as one of uræmic convulsions. He recovered from the paralysis and blindness within two weeks; but at varying intervals since he has had convulsions attended by more or less complete unconsciousness, the convulsive movements always beginning in the thumb and index finger of the right hand (side of former hemiplegia), extending thence to the arm, shoulder, and neck, when he would lose consciousness and fall. A history of a bad fall, his head striking on the left occipito-pari-

etal region, still further complicates the case. The attacks are apt to occur when the uræmic symptoms are most pronounced. Treatment directed to the relief of the uræmic symptoms affects the convulsions beneficially, and the same is true of the action of the bromides independently. The supposition is that the trauma localized a focus of irritation, which was aggravated to an explosive state by the toxic action of uræmia.—ED.]

Putnam, of Buffalo, ²⁴²_{Aug. 29} records a series of observations made upon epileptics as to the localizing significance of movements made during sleep. He did not consider such movements as he had observed to have been accidental and purposeless, but of some value as indicating the seat of disease. Browning ²⁴²_{Jan.} has been investigating the conditions of anisocoria (inequality of pupils) as it occurs in epilepsy. One hundred and fifty cases were observed, and the condition, in either a marked, slight, or latent degree, was found present in sixteen cases, or about 10 per cent. James Cagney ⁶_{Nov. 14, '91} reports two clinical examples of peripheral neuritis occurring in association with epilepsy, or developing immediately after a seizure. In one of the patients the neuritis occurred twice with an interval of a few years. Cagney suggests an hypothesis of toxic infection as a factor in producing both the epilepsy and the neuritis, of which the latter remains more or less permanently as an evidence. Potakoff ²¹⁴⁷_{No. 15} reports a case of epilepsy in which, as the result of a seizure, the liver was ruptured across the entire anterior aspect of the right lobe. Nius ⁴⁷ reports the case of a syphilitic patient, who, two weeks after an attack of what was apparently *grand mal*, developed a condition of typical exophthalmos. The symptoms were fixed and staring eyes, vertigo, constant headache on left side, and non-association of lid and eyeball in movement. There was no enlargement of the thyroid. Under potassium iodide the patient made marked and rapid improvement. Féré ⁶⁸_{Aug.} described a peculiar anomaly of the coccyx which he observed in an epileptic, resembling and suggesting in appearance a rudimentary tail. Féré considers the case interesting, not alone as bearing upon the history of a caudal appendage in man, but also as illustrating the fact that, in the morphology of degenerates, no organ is spared.

Caballe ³_{Sept. 28} reports a case of hæmorrhage consecutive to epilepsy, and cites similar phenomena observed by others.

Types.—A number of papers, clinical and historical, empha-

size the importance of recognizing the anomalous and more unusual phenomena of epilepsy. One of the best is by Riggs, of St. Paul.¹⁰⁵_{May 1} Another by Wilks,²_{Jan. 2} raises the question as to whether coma or sleep may not be sometimes the only symptom. His own experience, as illustrated in several reported cases, leads him to believe this to be the case. Clinical reports illustrating many of the rarer phenomena of epilepsy are by Palmar,²⁸⁵_{May} Whitmire,⁷⁷⁹_{May} and several members of the Clinical Society of Maryland.¹⁰⁴_{Dec. 19, '91}

Cutis Epilepsy.—Benedikt⁵⁷_{No. 46, '91} describes the following case: A boy aged 15, was seized with rigors, followed by fever, his temperature ranging for eight days from 30° C. (86° F.) to 41° C. (105.8° F.), with severe headache and, on one occasion, brief unconsciousness. Apparent recovery ensued, but a week later the same succession of symptoms appeared, the temperature running up quickly to 42.5° C. (108.5° F.), where it remained two hours, dropping as suddenly to 36° C. (96.8° F.), when he seemed to be well again. Similar attacks recurred, occasionally as often as several times a day, until finally the boy could tell almost exactly the degree of his temperature. Whenever his fever reached 42° C. (107.6° F.) or 43° C. (109.4° F.) he lost consciousness, had a fixed, staring expression, and repeatedly articulated the word “räuber” (robber). The attack lasted from ten to thirty minutes usually and ended abruptly. The pulse never exceeded 104. Immediately after an attack the patient was much prostrated, complained of contractions in the nuchal muscles, and, for a few moments, had visual hallucinations. The attacks never occurred during sleep or at night, but appeared quite often at the table. Quinine and arsenic had no effect, and phenacetin was useful only for a short time. Sodium iodide in conjunction with the cauterization applied over the coronal suture, seemed beneficial, and the attacks gradually ceased. There were no cerebral symptoms during the intervals.

Reflex Epilepsy.—The annual example of dental reflex epilepsy comes this year from G. F. S.,⁸²_{Jan. 16} who reports a case of five years' standing, which had not been benefited by ordinary treatment, as having been greatly relieved by the extraction of several decayed teeth. The attacks, three months after the cause (?) had been removed, had almost entirely disappeared. That a peripheral irritation may and does aggravate the epileptic condition is a universally-accepted fact. That the *fons et origo mali* of the dis-

case is *ever* a peripheral one is a doctrine having few advocates. Proust ³_{Aug. 10} relates the history of a woman affected with cancer of the stomach who developed attacks which he believed to be of the nature of reflex epilepsy. A possible, if not a probable, explanation of the attacks in this case is to be found in the theory of the development of toxins or ptomaine products from the digestive derangement. Raymond, in discussing Proust's case, suggested such an hypothesis.

Malarial Epilepsy.—Luzzatto ⁵⁸⁹_{Dec. 13, '91} gives a *résumé* of the literature of the subject and reports an example of epilepsy occurring as a result of chronic malarial infection, as evidenced by its association with several symptomatic phenomena characteristic of malaria. [It should be remembered that neither a rise of temperature nor periodicity in the attacks is an evidence of malarial origin, as both phenomena are common in ordinary epilepsy.—Ed.]

Nocturnal Epilepsy.—A case which, from the clinical description, is evidently of this character, and which has an important medico-legal aspect, is reported by C. ⁷⁶⁰_{Apr. 2}. The patient, a man of 40, temperate, of good moral character, with no abnormal hereditary tendencies, but who has been a somnambulist since childhood, began to be affected with attacks at night in which a homicidal disposition is a constant and alarming feature. He has repeatedly attempted to kill his wife by choking her, mistaking her for a robber or an animal. When aroused, a matter quite difficult at times, he is totally unconscious of his previous actions. During the day he is a quiet, peaceable man, a good husband, and a good citizen.

Hystero-Epilepsy.—Vander Veer ¹⁰⁰³_{Apr.} writes upon this subject from a gynæcological stand-point. Six patients were operated upon for the removal of a supposed cause in a diseased condition of the tubes or ovaries. Two cases were cured, two were somewhat benefited, and two were not affected at all, these two being both cases of true epilepsy with some associated hysterical symptoms.

Jacksonian Epilepsy.—L. Kramer ⁶⁸_{Apr.} reports a case in which there was a history of syphilis. The patient developed a paresis with contracture of the arm in which the epileptic movements occurred, and a marked degree of muscular atrophy ensued. Springthorpe ²⁸⁵_{July 15} describes the symptoms with autopsy in a case of unilateral epilepsy due to a meningo-cortical lesion the size of a penny, located in the first and second left frontal convolutions.

Standtharter ⁵⁷_{Apr.17} relates the histories of two patients, 43 and 44 years old, affected with epilepsy of the Jacksonian type, in one of which an autopsy was secured.

Treatment.—Some very remarkable reports of cure in epilepsy, by inoculations with Pasteur's antirabic virus, have been made during the year. Attention was first attracted to the matter at the Pasteur Institute in Paris by an accidental and unexpected result following the inoculation of two epileptic children who had been bitten by rabid dogs. ¹¹³_{No.24} The treatment was not only successful as regards the development of symptoms of rabies, but it was noticed that the epileptic seizures did not re-appear at all after the inoculations, though of comparatively frequent occurrence before. Pasteur mentioned the incident to Charcot, ⁶_{May 28} who sent to the institute an inveterate epileptic, aged 12 years, whose attacks had been extremely frequent, and who had not been benefited by any form of treatment. Six days after the inoculations the child became free from attacks. They had not recurred two weeks later, when the case was reported. A. de Giovanni ²_{Sept.24} tried a similar treatment in the following case, with very satisfactory results: The patient had been subject to fits for five years, and lately had had as many as five or six daily. She had, besides, maniacal attacks, impairment of speech, limited intelligence, stupor, etc. The treatment adopted was the same as that for a case of hydrophobia. Good effects were noticeable on the second day of treatment, and the improvement went on steadily in all the symptoms; the convulsions ceased, the disposition and appearance of the patient improved, and it seemed likely that a permanent cure had been brought about. Another paper upon the same subject is by Arostigui. ⁴⁵⁶_{July 5} An article of associated interest with the above is by Babes, of Bucharest, ⁶⁹_{No.30} who describes the results attained in the treatment of epilepsy and other nervous diseases by the subcutaneous injection of aseptic nerve-substance taken from the brain and spinal cord of rabbits and sheep. In a number of cases there was a "remarkably striking" improvement; one patient, for example, who for three years had suffered from daily attacks, had not had a single attack from the time of commencing the injections up to the time of the report (about two months). In another patient the attacks had for several months been very violent and seven or eight a day in number. Treatment was

begun May 1st, and up to the 22nd of June, when the report was published, only one attack had occurred (June 11th). All the cases of epilepsy treated (six) were benefited, without exception. Babes does not believe the beneficial action of the injections to be a chemical one, but due to the introduction of a large quantity of nerve-substance into the lymph. He believes in large injections—4 to 5 grammes (1 to $1\frac{1}{4}$ drachms)—of an emulsion of 1 to 5 of bouillon, given five or six times a week. The nerve-substance is prepared for use by being kept free from germs and pressed through several layers of clay, after which it is made into an emulsion (1 part to 5) with bouillon and filtered.

Another therapeutic innovation of a somewhat startling nature comes from Sihle,²¹_{Nov.9,'91} who reports fifteen cases treated by Wetterstrand by hypnotism, in most of which there was either cessation of the attacks altogether or quite marked improvement. Our therapeutic resources in epilepsy have not been increased by any new drugs which are at all likely to supplant in value the action of the bromides and their congeners. Kisleff,⁵⁸⁶_{No.20} following the suggestions of Arkhangelsky,²⁰⁰¹_{No.59,'91} whose experiments upon animals showed that the alkaloid hydrastinine ($C_{11}H_{13}NO_3$) possessed powerful antispasmodic action, has been testing the action of the drug in epilepsy. Six cases were experimented upon. The drug was given in aqueous solution in quantities of from 1 to 2 grains (0.065 to 0.13 gramme) a day, in frequent doses of from $\frac{1}{5}$ to $\frac{1}{2}$ grain (0.013 to 0.032 gramme) each. In four patients the fits diminished in intensity and became fewer in number. In two cases the treatment was inefficacious. Gadziacki also tried the drug in a single patient, but without result. Krug,⁶⁵⁰_{No.51,'91} found that, under 3 grammes (46 grains) of sodium salicylate daily, the number of convulsions, which under bromides had averaged six a day, was reduced to three and one-half a day. The period of observation was two and a half months. This result, while it may simply illustrate the now well-known fact that any new remedy will temporarily relieve the symptoms in epilepsy, may have a very important significance in connection with its action as an intestinal antiseptic, controlling the development of toxins which may cause the explosion. Deny,³_{Aug.10} has been making a comparative test of the value of bromide of potassium and bromide of strontium. Seven epileptics were treated for six months with potassium bromide.

During this period the seven patients collectively had three hundred and thirty-one fits. After an interval of some months they were placed upon strontium bromide, given in the same doses and under the same conditions of diet, regimen, etc. Under the strontium treatment the total number of attacks was two hundred and forty-six, or eighty-five less than when under the potassium. Bromidism, moreover, was not observed once when under the strontium. Deny agrees with Féré that the drug is a valuable auxiliary in the treatment of epilepsy. König³_{No. 11} relates the history of a patient in whom he controlled the condition of status epilepticus with a subcutaneous injection of $\frac{1}{3}$ grain (0.022 gramme) of pilocarpine hydrochlorate. Very threatening symptoms ensued, however, immediately after the injection before relief appeared, and Féré³_{May 18} has, therefore, entirely abandoned its use in epilepsy, not only because of its danger, but because there ensues an increase in the number and intensity of the attacks. Guy Hunsdale⁴⁵¹_{Mar.} summarizes the results of clinical tests made under the supervision of Weir Mitchell, in the Philadelphia Infirmary for Nervous Diseases as to the value in epilepsy of potassium bromide, magnesium bromide, hydrobromic acid, nitro-glycerin, antifebrin, sulphonal, etc. The first three were found ineffectual in comparison with potassium, sodium, and lithium bromide. Nitro-glycerin was only temporarily beneficial, and antipyrin was of most value in the milder forms of the disease, in some instances acting very much better than the bromides. Sulphonal had proven a most valuable adjunct to the bromides and was next most reliable in its results, both in its effects upon the number and violence of the attacks and in improving the associated states of mental perversion. Other evidence in favor of sulphonal comes from G. A. Bonnatyne,¹³¹_{Dec., '91} who tried it in eight cases in which other remedies had failed to give relief. In each instance the effect was markedly beneficial.

The drug treatment of epilepsy is also discussed by Pierret,²¹¹_{Aug. 28} Cheever,⁵⁴⁷_{Mar.} Selman,¹⁹⁹_{June, Sept.} Samueli,²²_{Apr. 6} and Mairet.⁷³_{Feb. 6} Samueli's paper deals with the treatment of hystero-epilepsy, for the relief of which he found hypodermatic injections of duboisine sulphate very effective. Mairet advocates the borax treatment. He calls attention to some of the bad effects of the drug on the skin and alimentary canal, which can be avoided by proper precautions. Several formulæ are suggested, among them the following:—

R Borax, ℥iiss (10.00 grammes).
 Glycerin, ℥j (30.00 grammes).
 Licorice mixture, ℥iv (120.00 grammes).

Or,

R Borax, ℥iiss (10.00 grammes).
 Glycerin,
 Strong infusion of coffee, . . . āā ℥j (30.00 grammes).
 Sugar of milk, ℥iiss (75.00 grammes).

Or,

R Borax, ℥iiss (10.00 grammes).
 Glycerin, ℥ij (7.50 grammes).
 Syr. bitter orange, ℥iij (90.00 grammes).

The importance of diet and exercise in epilepsy is emphasized by Fort.¹⁰⁴_{May 28} The advocates of surgical interference are offered some encouragement in the reported results attained by this method during the year. I have found two successful cases. The correctness of the principle has never been impugned, but the practical results have been in so many instances disappointing that every success is worth recording. The two cases referred to are reported by Poirier⁹¹_{p.412} and Shaw, of St. Louis.⁵_{Dec.} Poirier's case was that of a man, 34 years old, who had epilepsy, with localizing symptoms pointing to the right motor region, for nine years. For three years he had severe headaches. The Rolandic fissure was exposed at the point indicated by the symptoms, and a soft tumor found, which proved to be an angioma. Removal was followed by complete recovery, which has continued (seven months later). Shaw's patient was a woman, 31 years old, affected with Jacksonian epilepsy, always beginning in the right hand and arm. There was hemiplegia on the right side, first noticed in the arm. A quite interesting symptom was pain and paræsthesia, constantly present in the right arm. The skull was trephined over the right arm-centre, and an osteophyte of bone was found pressing exactly upon the arm-centre in the ascending frontal convolution. The cortex appeared softened. This was partially washed away by a stream of sterilized water, and the wound closed. The pain in the arm and convulsions have disappeared entirely since the operation, though a permanent paralysis of the arm remains. It is interesting and important to note that pain of central origin was present in this case, due to lesion of the ascending frontal (motor) cortex, and not to lesion of the post-parietal or angular regions, which

were unaffected. Sachs and Gerster, ²⁴²_{Dec., '91} in a joint paper, report nine cases operated upon, with not one cured, although in several cases improvement followed the operation.

Benedikt ⁴¹_{Sept. 5} relates the history of a case as illustrating the dangerous results sometimes attendant upon excision of the cortex for epilepsy. In the patient referred to such excision was followed by great mental disturbance, aphasia and opposite hemiplegia, which persisted for some time, but eventually disappeared. These more serious results do not, however, always disappear. Benedikt attributes them not to injury of the cortex-centres, which he believes to be only convulsive centres, but to damage and shock to the subcortical white matter. Murdoch ⁶¹_{Apr. 23} operated upon a patient affected with epilepsy of traumatic origin, the trauma having been received ten years previously, by incising the scalp over the scar and loosening up the adhesions between the scalp and skull, not entering the cranial cavity at all. The effect is not stated, but it is a justifiable physiological presumption that the resulting benefit will, if it occur at all, be largely psychical and transient. Much attention is being given to the subject of State care for epileptics and their treatment in private institutions. Papers appealing for action, both legislative and corporate, in this direction have been published by Theodore Evart, ¹⁶³_{Apr.} Peterson, ¹_{July 23} Lucius Baker, ⁹⁹_{Dec., '91} and Adams, ¹¹²_{Sept.} There is no question but that the treatment of epilepsy in an institution especially adapted to the purpose involves an ideal environment, and affords a prospect of far better results than can be accomplished otherwise. The advantage of a perfected system and order in the manner of living, including diet, exercise, and healthful diversion, together with the constant and watchful supervision of trained attendants and medical supervision, cannot be overestimated. No other type of disease demands these factors so absolutely in its treatment as epilepsy. The prognosis as regards death from the disease is discussed by Worcester ²⁴²_{Mar.} and Wilmarth, ⁹_{Dec. 12, '91} Basing his statements upon statistics gathered from asylum reports, Worcester finds that in thirty-seven asylums, where the epileptics numbered 535, the deaths from epilepsy were 143, or 27.6 per cent. In fifteen asylums, with a total of 2029 epileptic patients, the deaths from the disease were 611, or 30.1 per cent. In the Michigan Asylum, out of 234 admitted, 62, or 26.5 per cent., died from the disease. These facts the writer finds to be in

remarkable contrast with the statements of Gowers and others, to the effect that death from the disease *per se* is rare.

CEREBRAL SYPHILIS.

Hereditary cerebral syphilis is the subject of several papers of interest. Heller⁶⁹_{No.26} has collected and analyzed sixteen cases of syphilitic hydrocephalus, to which he adds one of his own. In most of these the diagnosis of a syphilitic origin cannot be made positively during life, which is unfortunate, as it is of the utmost importance to inaugurate energetic treatment early.

Cnopf³⁴_{Mar.15} relates the case of an infant, 2 months old, who died of cerebral syphilis, with hydrocephalus of both the external and internal variety. Cnopf succeeded in finding only 12 recorded cases, in 6 of which the disease was of the arteries, and in 6 gummatous. Only 4 of the 12 cases occurred under 1 year of age. When the lesion was a gumma, the base of the frontal lobe seemed to be the point of selection. The most exhaustive and valuable contribution to this field of cerebral syphilis is by Leon d'Astros.⁴⁶_{Nov.15, Dec.15, '91}¹¹⁸_{Dec., '91} The cerebral manifestations of precocious hereditary syphilis, he states, are: Meningitis, which is rare and ill-defined; arteritis of the cerebral vessels, which is quite frequent; gummata, which are rare, except during "second" infancy; and syphilitic ependymitis (ventricular), which he considers the most precocious and characteristic form of hereditary cerebral syphilis. Its evolution appears to bear a relation to the degree of infectiousness of the syphilis. It is made manifest by a variety of nervous symptoms, convulsions, tremblings, strabismus, and especially by acute hydrocephalus of rapid development, which is characteristic. The functional importance of the corpora striata for the reflex life of the infant is, perhaps, the cause of this localization. D'Astros describes two such cases which he observed personally, and in which he secured autopsies. The author's papers are rich with an abundant bibliography. Erlenmeyer⁶⁸_{Nov., '91} writes a clinical article, also of value and interest, upon this subject.

Cerebral syphilis in the adult is the subject of papers, chiefly clinical, by Gilles de la Tourette,³_{June 11, July 9} Joffroy and Létienne,⁵⁷_{July 31} Otto Harmsen,⁶_{Mar.19} Tompkins,⁸¹_{Jan.} Durr,¹⁰⁵²_{May} Spitzka,²¹⁴⁸_{June 22, '24} Stacey Wilson,²_{Nov.28, '91} and Ferras.¹⁸⁸_{June 12} A most interesting and instructive case of hysteria in a man affected with secondary syphilis is described

by Fournier,³¹_{Nov. 19, '91} who excluded every probable cause other than syphilis for the hysterical outbreaks. The symptoms were tears without cause; fits of sudden, uncontrollable laughter; left hemiplegia and hemianæsthesia (transient); globus, and periodic clouding of the intellect at the same hour of the day. The symptoms almost entirely disappeared under iodides.

MULTIPLE CEREBRO-SPINAL SCLEROSIS.

That multiple sclerosis is a disease possessing no absolutely characteristic symptom picture is not only a rational deduction from our knowledge of its pathology, but is also attested by a constantly-increasing clinical experience. We not only have at least three clinical varieties of the disease itself, according to the recent classification of Charcot, but many instances have been reported in which the lesions of multiple sclerosis have been found at the autopsy, while the symptoms during life were those of very different affections. Charcot²¹²_{Aug. 10} describes the case of a patient in whom there were present in "triple superposition" the symptoms of tabes, disseminated sclerosis and hysteria. Grasset¹²⁶_{July 15} reports a case in which the symptoms of hysteria were so conspicuous that a diagnosis of multiple sclerosis, which was suspected as a possibility, could not be established until the autopsy. Similar cases of hysteria associated with multiple sclerosis have been reported by Souques, Oppenheim, and others, but the author states that his own is the first case in which such association has been established by an autopsy. Freund⁴¹_{July 11} publishes a paper on sensory disturbances in this disease. The author's statements are largely based upon an analysis of Oppenheim's cases, 33 in number, 28 of which showed some disturbance of sensation. Touch was impaired in 18, muscular sense in 8, while others showed impairment of pain and temperature sense, and in 2 there was loss of taste.

Gasperian²³²_{Jan. 30} reports a case of multiple sclerosis of the abortive or "*fruste*" type in which almost complete arrest of all symptoms occurred, the remission lasting for some time. Two clinical examples of multiple sclerosis developing quite suddenly are reported: one by Jordan³²_{Apr.} and the other by Huxtable.²⁶⁷_{May} In Jordan's patient, a woman 22 years old, symptoms of coarse intention-tremor, nystagmus, slurred and scanning speech, vertigo, exaggerated knee-jerks and ankle-clonus, with mental disturbance,

developed three days after a fit of extreme anger and excitement. Huxtable's patient was a stoker, 56 years old, whose symptoms, the most important of which was marked intention-tremor, developed shortly after several nights of exposure fishing in an open boat in heavy rains. Peppo⁸⁷_{Apr. 30} contributes a paper upon this subject, which is chiefly a *résumé* of the various writings of Charcot and his pupils. Krzywicki⁶⁹_{p. 255} gives a clinical example of the disease.

MISCELLANEOUS.

The reflex theory of nervous disease is considered by Bremer,⁶¹_{Sept. 24} who criticises dispassionately and with forcible wisdom the tendency toward an exaggeration of the importance of a reflex cause for disease. Diggs⁶⁴⁵_{Sept.} writes a clinical paper emphasizing the importance of overpressure in school-children as a cause of brain-mischief. Vertigo is the subject of a paper by Elsner,⁹_{Apr.} who describes what he considers a new clinical sub-type of this affection. It belongs to the cardiac group and is found in association with well-marked accentuation of the first mitral sound and strong systolic contraction, amounting at times to "a veritable *delirium cordis*," but without organic lesion. This form of vertigo is almost continuous, but is relieved by controlling the violent systole. Suckling,³²_{Nov., '91} Maxson,¹_{Jan. 23} and Brady¹_{Oct. 1} have also contributed to the literature of the subject. Suckling gives an interesting and comprehensive *résumé* of the symptomatology, pathogenesis, and treatment of Ménière's disease. Maxson's paper deals elaborately with the same subject, though no new facts of interest or value are adduced by either writer.

Astasia-Abasia.—Although simply one of the myriad manifestations of hysteria, the affection first described by Blocq under this term seems to have become so firmly established as a symptomatic entity that it is given separate consideration here. Numerous clinical examples have been reported recently, and much additional evidence is constantly accumulating in support of the accepted belief that the condition is one of pure major hysteria. It is often found as a result of conditions of more or less profound debility occurring in the neurotic. Pittaluga³⁶³_{Nov. 28, '91} reports such an example in a child 9 years old, following an attack of typhoid fever. Benedikt²²_{Mar. 23} exhibited before his clinic two patients affected with astasia-abasia, one of whom presented marked cranial

asymmetry. Philip Coombs Knapp²⁴²_{Nov., '91} relates the history of a patient who exhibited symptoms pointing to the co-existence of astasia-abasia and paralysis agitans in the same patient. This paper contains abstracts of fifty cases gathered from the literature of the past four years.

Diagnostic Miscellany.—Sommer⁶⁸_{Nov., '91} gives the technique of an original method of taking a combined photograph of the skull and brain in order to determine the relation of sutures to fissures, etc. Ernest Winkler⁶²_{Mar.} has been studying the origin and significance of the pulsation and systolic souffle of the fontanelle in infants. He considers it as of carotid origin, and does not believe the phenomenon possesses any diagnostic value, since it may be present in apparently healthy children, or, when produced by disease, is a consequence of so many conditions as to be valueless. Gray, of Roanoke, Va.,⁸¹_{Aug.} makes a timely contribution to an important and much-neglected subject, in a paper entitled "Special Counter-Irritant Areas of the Head." The occipital-protuberance area and the parietal-foramen and mastoid-foramen areas are especially considered. Clinical examples are cited illustrating the value of counter-irritant measures of relief, in certain conditions of cerebral congestion and inflammation, applied to these special areas, a decided effect upon the intra-cranial circulation being quite easily attainable at these points.

DISEASES OF THE SPINAL CORD.

BY H. OBERSTEINER, M.D.,

VIENNA.

THE past year has not been productive of important new facts pertaining to diseases of the spinal cord; but our knowledge in this class of affections has, nevertheless, been noticeably extended in various particulars. We have to note a succession of important developments with regard to the more minute anatomy of the spinal cord, from which we may be led to expect a decided revolution in the diagnosis of many of its diseases. These anatomical facts, however, are not yet sufficiently confirmed to render positive deductions possible as regards pathology.

TUMORS.

Repeated attempts have been made, most of them with unsuccessful results, to remove tumors of the spinal cord by operative procedures. Besides the cases reported in Section A, vol. iii, Lichtheim, of Königsberg,⁶⁹ Dec. 17, '91 quoted two. In the first, the seat of the tumor was at the level of the ninth dorsal vertebra. The patient died of purulent meningitis two days after the operation. In the second case, the tumor was at the level of the fourth dorsal vertebra. After subsequent recovery, the inability of locomotion, which before had been complete, was so far improved as to make it possible for the patient to walk without a cane. Disturbances of sensibility in the right leg and on the right side of the thorax alone remain.

Ramson and Anderson⁵⁵ Dec. 19, '91 attempted the removal of a hydatid cyst in the vertebral canal. The patient, aged 48, was suffering from paraplegia, with incontinence, and anæsthesia of the legs with diminution of sensibility above the anæsthetic zone. The vertebral canal was opened between the last dorsal and the second lumbar vertebra, but nothing was found. After three days the patient died, and the post-mortem showed that the hydatid cyst

was located higher up in the region of the tenth dorsal vertebra, and that the spinal cord was there involved.

Graham, of Toronto, ³⁹_{Nov. 15, '91} also operated unsuccessfully; the case in question was one of vascular fibroma, starting from the dura mater and involving the right side of the spinal cord. It is worthy of note, in the history of this case, that the left testicle retained its sensibility, while elsewhere, below the second lumbar vertebra, there was complete anæsthesia. After the vertebral canal had been opened in the region of the lower dorsal vertebra and the tumor removed, an upward and downward motion of the spinal cord, coinciding with respiratory movements, could be observed. Three days after the operation the patient died. A case of lymphadenoma was described by Jackson Clark, ²_{Nov. 21, '91} originating from the lumbar glands and involving the first lumbar vertebra, and extending along the nerve-roots, finally involving the spinal cord itself. Silberkuhl, of Rüttenscheidl, Prussia, ²¹⁰ minutely describes the case of a boy aged 15, in which a gliosarcoma was developed in the spinal cord, following a wound; the tumor had extended to the upper dorsal portion without central disintegration. (See Section A, vol. iii.)

HÆMATOMYELIA AND HÆMATORRHACHIS.

J. Kindred, of Harrisburg, Pa., ⁴⁰_{Apr.} describes a case of spinal hæmorrhage worthy of note in various particulars. The attack began without any perceptible cause, while the patient, a male aged 59, was in perfect health, and without any preliminary symptoms. Three hours later, the symptoms were at the highest stage of development; anæsthesia and paralysis below the fifth dorsal vertebra; a sensation, as of a belt around the body, preceded by fugitive pains; six hours and a half after the beginning of the attack, the patient died. At the post-mortem examination, a blood-clot, the size of an almond, was found in the gray substance, slightly below the level of the fourth lumbar vertebra, the softening extending to the neighboring parts. The sudden fatal termination of this case is especially noteworthy.

Diller, ⁶¹_{Nov. 19, '91} also cites a case of purely idiopathic hæmorrhage of the spinal cord, occurring in a male aged 51. Notwithstanding the fact that the lesion was probably rather an extended one, the patient recovered. When the hæmorrhage does not involve the

spinal cord itself, and only occurs in the sac of the dura mater, the symptoms usually appear much less pronounced, and recovery may more confidently be expected. In the case quoted by Fortin, of Rouen, ²⁰³_{Jan. 15} there was complete recovery, after nearly a year and a half. We must, therefore, consider the hæmorrhage as not having involved the spinal cord.

HETEROTOPIA.

Until quite recently, heterotopia and other malformations of the spinal cord were regarded as of rare occurrence. Of late, the published cases have not only been more numerous, but it may also be believed that such malformations are not infrequent. Any one having the opportunity of examining a number of spinal cords, will surely find among them one or more in which the gray substance presents an abnormal appearance. These malformations need no longer be regarded as curiosities; they are rather to be considered as a proof of the pathological condition of the entire nervous system, a closer study of which will undoubtedly result in a satisfactory solving of many a mooted question in the history of the development of the spinal cord.

Two very interesting cases, in connection with this subject, are minutely described by Feist. ⁷⁵_{Nos. 23, 24, 91; Nos. 15, 16} Both occurred in patients who had been suffering from dementia paralytica. In the first case there was to be observed, besides symptoms present, a double formation of the cord in the lumbar portion. In the second, very pronounced congenital changes extended from the fourth dorsal vertebra to the beginning of the lumbar portion, the left side, however, alone being involved.

Kronthal ⁴¹_{July 4} also calls attention to the great importance of heterotopia; a spinal cord, thus abnormal, would form a *locus minoris resistentia* which, in the event of any injury to the body, would promote disease.

Van Gieson, of New York, ²⁴²_{Aug.} very properly dwells upon the fact that one must necessarily be very careful in conducting a post-mortem, be it at the time of removing the spinal cord from the vertebral canal, or later; care should be taken not to cause any change in the cord, either by pressure, bruise, tension, or any other proceeding, which changes could easily be regarded as congenital. Among thirty published cases he only found six incontestable heterotopias which had not been artificially formed. He

verifies his views by experimental post-mortem injuries, and shows a complete series of corroborative cuts.

MULTIPLE SCLEROSIS.

Nolda³⁶⁸_{B.23} quotes a case occurring in a girl aged 9. By comparison of combined cases of multiple sclerosis in childhood, the opinion of Unger, namely, that this affection, occurring in children, almost invariably follows an infectious disease, is shown to be correct.

The symptoms involving the vocal organs in the case of multiple sclerosis are, if at all present, very varied. Krzywicki, of Berlin,⁶⁹_{Mar.24} mentions a case which is especially noteworthy, from the fact that the muscular elements of the larynx were analogous to those of the extremities. Tremors of the glottis occurred, and the adductors and tensors were markedly weaker than the abductors. Charcot, of Paris,³_{Jan.27} describes the case of a female patient, in which was present the singular combination of multiple sclerosis and dementia paralytica.

SYPHILIS OF THE SPINAL CORD.

Erb, of Heidelberg,⁷⁵_{Mar.15} cites a number of cases of syphilitic disease of the spinal cord, which, clinically, closely resemble myelitis transversa dorsalis, but are, however, distinguishable by a number of typical symptoms. These syphilitic spinal affections are characterized by the fact that the patients, at the first glance, present the well-known walk, posture, and motion of spastic paralysis, and that there are also present very marked tendon reflexes, but comparatively slight muscular tension; an accompanying affection of the bladder is always present. Impaired sensibility finally occurs, and, though usually very slight, it is always distinguishable. Severe pain is not generally felt; muscular atrophy is not present; the arms, head, and cerebral nerves remain unaffected; the fact that the muscles of the eye are not involved is especially noteworthy. Psychically, nothing abnormal is to be observed; only the lower portion of the body, therefore, is affected. The development of the disease, which Erb terms syphilitic spinal paralysis, is but slow; there is a marked tendency to improvement after energetic anti-syphilitic treatment. The malady begins within a comparatively short time after the syphilitic infection, not infrequently during the

first year. The frequency of this disease in proportion to tabes is about as one is to ten. Muchin, of Charkow, ⁶⁸_{May 8} has also observed a number of such cases with syphilitic spinal paralysis. He believes, however, that this disease is not as rare as Erb considers it. He occasionally finds functional derangement of the iris (contraction, inequality, weak or absent pupillary reaction to light) —differing also from Erb in this. After a series of investigations, Friedmann ¹⁰⁰⁵_{v.3, Nos. 1, 3} concludes that a typical form of spastic paraplegia occurs in children, which differs from so-called congenital spastic paraplegia; it is hereditary and presents the following peculiarities: complete recovery, tendency to relapses, and absence of cerebral symptoms. This disease closely resembles syphilitic spinal paralysis in adults, described by Erb, although it does not present exactly the same appearance in children; the primary localization occurs exclusively in the spinal cord. Basing his opinion upon considerable material (seventy-one cases), Boulloche²⁸⁷ gives a minute description of myelitis syphilitica. It frequently occurs after slight infection. It generally becomes chronic, seldom results in death, with but slight tendency to complete recovery. Möller ⁴⁵_{No. 2, '91} quotes five cases of syphilis of the spinal cord. The disease began from six to eighteen months after infection. It was only possible in two cases to effect a cure by energetic mercurial treatment. The premonitory symptoms were, in all cases, severe pains in the back; then difficulty in urinating; weakness of the legs; finally, complete retention of the urine and paresis of both legs. In one patient there was amaurosis of one eye, probably caused by hæmorrhage in the vitreous body. It must be especially noticed that, in the majority of cases, the eruptive stage was very pronounced.

Horwitz, of Philadelphia, ⁸⁰_{Apr. 15} calls attention to syphilitic anæmia of the spinal cord; the well-known syphilitic degeneration of the blood-vessels may also include the vessels of the spinal cord, by which the flow of blood to the spinal cord is partially or completely prevented. If then, upon post-mortem examination, there is found softening of this organ, it may readily be erroneously ascribed to an inflammatory process. Among the six cases described by Horwitz, all of which were addicted to the use of alcohol, four were females. The symptoms always present themselves late in the tertiary period (three and a half to eighteen years after infection).

MYELITIS.

Oppenheim, of Berlin, ⁴_{No.31} has again reviewed the discussion concerning the pathology and anatomy of myelitis. He believes that more uncertainty and doubt surround the subject of myelitis than most of the other diseases of the spinal cord. Leyden, of Berlin, ⁶⁹_{July 7,14} on the contrary, regards myelitis as one of the best-known diseases. Undoubtedly, true acute myelitis is rare, if we except other similar affections of the spinal cord which may also be classed under the head of myelitis. At present, myelitis must be considered from two distinct stand-points: 1. Pathologically and anatomically. 2. Clinically with regard to symptoms. In the pathologico-anatomical field we note the following characteristics of myelitis: the presence of fat-granule cells and swelling of the axis-cylinder, as well as changes in the vessels, and, later, a tendency to destruction of tissue. Softening, therefore, must not be considered a germinal symptom of myelitis, as it may also occur through other causes (necrotic or hæmorrhagic disturbances).

As regards progress of the disease, Leyden distinguishes three forms: 1. Myelitis circumscripta, transversa acuta, myelitic area, most frequent in the dorsal portion; diffuse myelitis very closely resembles this form. The white substance is mainly affected, especially the posterior column of the spinal cord. 2. Myelitis multiplex or disseminata. 3. Poliomyelitis, which, to a certain extent, resembles acute myelitis. Leyden states that in myelitis acuta transversa the following typical symptoms occur: paraplegia of the lower extremities, with various disturbances of sensibility (anæsthesia, pain, etc.), also incontinentia alvi et vesicæ; yet the same symptoms may present themselves as a result of compression of the spinal cord in caries of the vertebræ or vertebral tumors, etc. The last-mentioned affection, termed compression myelitis, must not be confounded, anatomically speaking, with true myelitis. He also divides myelitis acuta transversa, relative to the time of onset, into three classes: the apoplectic (complete paraplegia within a few hours or one day), acute (one to several days), and subacute (several days to several weeks). Besides the severe, complete forms of myelitic paraplegia, there are milder affections which retain the same type, in which, however, only weakness, stiffness, paræsthesia, etc., occur.

Myelitis acuta disseminata is frequently not confined to the

spinal cord, but also attacks the medulla oblongata and the pons. The paralysis, which is usually slight, may affect the four extremities, principally, however, the lower ones. Ataxia forms a prominent symptom, also constant stuttering. Several cases of this form of myelitis have been cured. The third form of acute myelitis Leyden calls acute poliomyelitis, of which we shall have occasion to speak later on.

As regards etiology, Leyden mentions the following causes of acute myelitis: 1. Trauma, traumatic myelitis in which there is not necessarily direct injury of the spinal cord, but which may be the result of commotion or concussion; trauma is also frequently the cause or origin of other ailments, such as those induced by infectious germs, etc. 2. Mental disturbances, as, for instance, fright. 3. Peripheral processes (neuritis) which ascend to the spinal cord. 4. Cases in which no positive etiology can be given, and which are caused, for instance, by fatigue or atmospheric influences, and termed spontaneous or rheumatic myelitis. 5. Infection (infectious myelitis). 6. Intoxication (toxic myelitis).

The two last-named causes of disease are intimately connected and may even be considered as one. When the micro-organisms are assembled directly in the spinal cord, parasitic disease is developed (seldom, indeed); probably acute poliomyelitis and syphilis of the spinal cord also belong to this class, although we do not yet know the pathogenic cause. We must not fail, however, to mention gonorrhœa. Spinal affections following gonorrhœa are well known, and it is very probable that they result from the migration of the gonococci to the spinal cord.

Two cases of myelitis, which most probably can be traced to gonorrheal infection of the spinal cord, are also quoted by Raynaud, of Algiers.²⁴ June 19. Leyden mentions, as still another class of infectious myelitis, those cases in which no actual bacteriological process takes place in the spinal cord, and which are due to the action of a toxin produced by the infectious disease. Fiessinger, of Oyonnax, France,⁵⁵ Sept. 17 describes such a case of myelitis following influenza, the patient being a lad aged 14 years; ten days after the influenza the symptoms of acute myelitis appeared, which later assumed a chronic form. Determann, of Heidelberg,¹⁰⁰⁵ v. 2 and Eulenburg, of Berlin,⁶⁹ Sept. 22 both describe a case of Brown-Séquard's semilateral lesion occurring after influenza; and Huxtable, of

Sydney, ²⁶⁷_{Mar. 16} quotes a case of general paresis with cerebral symptoms, also after influenza. Bassette, of Philadelphia, ²⁴²_{July} gives a complete *résumé* of all forms of cerebral and spinal paralyses which may occur in children during or after the various infectious diseases; she also quotes a number of cases of her own. According to Leyden, most cases of infectious myelitis belong to the disseminated class, the same being true of those which can be referred to trauma or pregnancy. Chronic infectious maladies more rarely induce myelitis. Closely allied are those purely toxic affections of the spinal cord, noticeably those occurring among zinc-workers. Finally, anæmic, or cachectic, myelitis must be considered.

The relation of pernicious anæmia to spinal maladies constantly becomes clearer. Norden ³⁰⁹_{'91} and Minnich, of Königsberg, ¹¹⁴_{v. 21} have made valuable reports upon this subject. The last named quotes six such cases, in which disturbances of sensibility were the principal symptoms. Frequently there is ataxia and absence of patellar reflexes. This is, anatomically, a disseminated myelitis, confined to the region of the posterior column of the spinal cord, starting from the septis and the vessels; to this fact is due the irregular area. Mills, of Philadelphia, ²⁴²_{Aug.} describes a case of myelitis rapidly ending in death. Without any known cause, there developed, in a male aged 37 years, within three days, complete paraplegia, anæsthesia of the lower extremities, and incontinence; at the end of eight days the patient died, after the appearance of fever and the extension of the symptoms to the upper extremities. The spinal cord was markedly softened in the central portion, from the cervical region to the lumbar portion, being especially deteriorated in the dorsal region. Wharton Sinkler, of Philadelphia, ²⁴²_{Mar.} describes another case of acute myelitis dorsalis, which was cured. Anders, of Philadelphia, ¹²¹_{Sept.} cites a case of myelitis transversa, occurring in a female patient aged 22 years, which could be referred to no other cause than fatigue. She was a hard worker and nursed all her children, who followed each other closely. H. W. Berg ⁵⁹_{May 28} calls attention to the fact that compression myelitis may result from lateral curvature of the vertebræ; such cases are, however, rare, as the curvature of the vertebræ is successive, and the spinal cord can accommodate itself to this bending. He found, in a female scoliotic patient, aged 20 years, very pronounced symptoms, which pointed to partial disintegration of the spinal cord,

and regretted that the spinal cords of scoliotic persons were not subjected to closer examinations. Graham³⁹_{June 10} quotes a case of compression myelitis, caused by a lymphadenoma located at the ninth dorsal vertebra. M. Putnam Jacoby, of New York,⁴⁵¹_{June} cites a very closely observed case, in which a tumor originating in the vertebræ, in the upper dorsal region, caused compression of the spinal cord. Determann¹⁰⁰⁵_{v.2} calls attention to a case of myelitis transversa at the level of the fifth dorsal nerve, probably compression myelitis.

Depass, of Memphis,⁸⁴⁹_{Apr.} used, with very satisfactory results, in a number of cases of compression myelitis resulting from vertebral caries, the extension method devised by Fleming. The average time required for complete cure was from four to five months, and the longest time ever necessary was from seven to eight months. The following is the method adopted by Fleming: The patient, being constantly kept in the recumbent position, in bed, a cord is extended over rollers on the foot-board of the bed, with a weight of from five to ten pounds (two to four kilogrammes) attached to its end; the other end is fastened to a simple contrivance, which clasps the patient in the region of the pelvis. Counter-extension is established by means of a head-strap, which is also fastened to the head-board of the bed, by means of a short, strong rubber band. The administration of iodide of potassium in augmented doses (in as large a quantity as can be supported) is indicated, and the patient should be frequently bathed, to prevent decubitus; but the extension should be maintained, as much as possible, by means of the bands, during the bath.

Hudrewetzky,⁴⁰⁵_{v.13} in twenty-one cases of compression myelitis, found that in fifteen cases it was induced by tuberculous vertebral caries, in three by secondary carcinoma, and in one by each of the following: myeloma, myxoma, and sarcoma of the vertebræ. As regards the so-called inflammation theory, he considers that the compression disease of the spinal cord, in the case of vertebral tumors, must be referred to mechanical causes. If the lowest portion of the spinal cord is the seat of a lesion, there will result a complexity of symptoms, which, according to Ziegler, of Munich,²²⁶_{v.43} would be almost identical in the case of the sacral region of the spinal cord and of the cauda equina. The prevailing disturbance is recto-vesical paralysis, with weakening of the sexual functions, in

connection with a peculiar anæsthesia affecting the perineum, the genitals, and the posterior surface of the thigh, or, also, the entire posterior surface of the lower extremities; there may occur, in connection with these symptoms, various forms of paralysis. This peculiar anæsthesia was most minutely considered by Allen Starr, of New York, ^{July}. He discriminates seven concentric anæsthetic zones, of which the inner and smaller one comprises the anus, perineum, and posterior portion of the genitals. The higher up the lesion is situated in the spinal cord, the greater, naturally, will be this anæsthetic region; the largest zone described by him (the seventh) reaches to Poupart's ligament, and corresponds with a lesion at the level of the second lumbar nerve. The anæsthesia only extends to the epigastrium. Anæsthesia resulting from organic disease of the lower portion of the spine has also a limit line, which extends anteriorly to the fold of the groin, and posteriorly comprises the insertion of the muscles of the buttock, with the exception of a V-shaped region, located over the os sacrum. It is important to note that, in the forms of functional and hysterical paraplegia, with anæsthesia, the genital organs are not anæsthetically affected. We may also state, in this connection, that Bräutigam, of Dorpat, ¹⁸⁹⁵_{v.11} has found that, anatomically, the conus medullaris differs in men and women.

SYRINGOMYELIA.

The great interest centred upon this subject has been very wide-spread during the past, as well as the few preceding years. In the first place, opinions differ greatly as to how far it is possible to diagnose syringomyelia *in vivo*; that this is possible there should no longer be any doubt, yet the literature referring to this subject during the year 1892 again confirms the fact that it is not an infrequent occurrence to find, post-mortem, a syringomyelitic cavity in the spinal cord, where its existence has been unsuspected; on the other hand, it also occurs that the diagnosis of syringomyelia is not confirmed by the post-mortem examination, and it is greatly to be regretted that such errors of diagnosis are not more frequently made public.—probably through false pride,—as just such cases are especially instructive. We have also learned that certain symptoms, as, for instance, dissociation of cutaneous sensibility, which thus far had been regarded as pathognomonic in syringomyelia,

do not infrequently occur in many other diseases of the spinal cord. In anæsthetic leprosy we also find a similar dissociation of cutaneous sensibility as well as in other peripheral nervous diseases, according to Strauss and Schlesinger.<sup>1005
No.2</sup> This also accounts for the fact that certain investigators, particularly in France, consider syringomyelia and leprosy as identical. Marestang<sup>92
v.11</sup> and Looft<sup>20
B.123</sup> plainly state these opinions. The identity of syringomyelia and Morvan's disease, and probably also of symmetrical gangrene (Raynaud's disease), in several cases (J. Kornfeld<sup>84
May 11</sup>), appears unquestionable, both from the anatomical and clinical point of view; in France, syringomyelia—Morvan's type—is frequently referred to. As this matter, however, has only of late been decided upon, it will still frequently be a subject of discussion.

Finally, the subject of syringomyelia calls forth great interest in regard to the genesis of the changes in the spinal cord, and numerous attempts have been made in the past year to throw some light upon the question. All points relating to syringomyelia are very fully and minutely treated of in the important work of J. Hoffmann, of Heidelberg.<sup>1005
No.3</sup> He bases his work upon 18 cases, of which, however, only 5 were accompanied with dissection. The remaining cases were only recognized as syringomyelia through clinical diagnosis. We must, nevertheless, mention the fact that this diagnosis was only confirmed in 3 cases by post-mortem; in 1 case, a diagnosis of chronic chorea had been made during life, and in another case there is no account of the diagnosis and history of the disease. Hoffmann cites the entire list of symptoms which, apart from the typical original symptoms (muscular atrophy, Duchenne-Aran's form, and dissociation of sensibility), complete the sum of those presented in syringomyelia. A difference in the width of the pupils (principally myosis), at nearly the normal or, at the most, slightly retarded action, also narrowing of the space between the eyelids, may frequently occur. These symptoms would indicate a diseased condition in the region of the first dorsal-nerve pair. They also occur in compression myelitis located at the same point, and also in the unilateral lesion of Brown-Séquard, which latter, were it not for the aid of etiology and history, would easily be confounded with unilateral syringomyelia. Attention may be called to the interesting case of Newmark, of San Francisco,<sup>9
Nov.26</sup> in which the upper lumbar cord was injured.

Limitation of the field of vision, independent of hysteria, may occur in syringomyelia, and secretory and vasomotor disturbances are also met with. It must be remembered as well, that the disease very frequently extends beyond the spinal cord, involving a considerable portion of the bulbus, thereby occasioning bulbar symptoms,—as for instance, in the ninth case quoted by Hoffmann. Or that minutely described by Raichline.²¹¹ As regards those trophic disturbances characteristic of Morvan's disease, Hoffmann is also of the opinion that in these cases there is no question of *sui generis* disease, but that Morvan's disease can scarcely be, either anatomically or clinically, distinguished from syringomyelia. The lower extremities are always much less affected than the upper, but trophic skin disturbances and like symptoms also occur on the lower extremities (Marchiafava and Bignani⁴⁸¹). If these trophic disturbances occur, there may be observed simultaneously also, in the peripheral nerves, signs of a more or less pronounced neuritis; but this may be absent in some cases. The complexity of symptoms of Morvan's disease may therefore result from the spinal cord alone, while the nerves remain unaffected.

H. Schlesinger, of Vienna,¹¹³_{Dec. 4} calls attention to the appearance of pemphigus bullæ in syringomyelia. Critzmann²¹¹² distinguishes four separate principal types of this disease: (1) syringomyelia, with progressive muscular atrophy; type Duchenne-Aran; (2) the type of Morvan's disease; (3) amyotrophic lateral sclerosis; (4) latent syringomyelia.

Concerning the genesis of the pathologico-anatomical changes in the spinal cord, Hoffmann is of the opinion that these have their origin in congenital abnormal development. These anomalies most frequently present themselves at the juncture of the medullary canal, where occasional nests of germ-tissue remain separated and located behind the central canal; in these cases there may occur, later on, proliferation of tissue, which may be termed glia proliferation, or hyperplasia of the glia. This tissue may again become the seat of a repressive metamorphosis, decay of tissue, and pathological formation of cavities. Another anatomical condition which may frequently be confounded with the above is that of a circumscribed elongated tumor (glioma) in the centre of the spinal cord, which may also undoubtedly be subject to central softening, and may thus occasion the formation of cavities. In the latter

case the spinal cord will appear hard, and of increased volume. Hoffmann, therefore, makes the following distinctions: 1. Hydromyelia, a condition of the spinal cord in which the relatively wide central canal of embryonic life retains, later on, this foetal character—without any known symptoms. 2. Primary gliosis of the spinal cord—true syringomyelia—in which the formation of cavities has not yet begun (peri-ependymous myelitis, or sclerosis, —central myelitis) or in which, through central softening, a cavity or fissure has been formed (*myélite cavitaire*—excavating myelitis). 3. Central glioma, with or without cavity, in which the symptoms are not of a very pronounced nature.

That the two last-named cases may readily be referred to a development anomaly is explained by the fact that, clinically and anatomically, abnormalities in the genesis of the central nervous system frequently occur, in connection with, or independent of, syringomyelia, or other distinct maladies may be there located, for which a congenital predisposition may be accepted as the primary factor.

Syringomyelia is also the subject of a detailed description by C. Bruttan.²¹¹³ He quotes seven new cases, all without post-mortem evidence. He is of the opinion that syringomyelia occurs twice as frequently in men as in women, and that it usually begins at an early age. As the progress of the disease is very slow, and the gliomatic deterioration probably occasions but few symptoms during the first years,—and these may readily be overlooked by the patient,—only already advanced stages of the disease come under medical treatment. At all events, the majority of cases present themselves between the ages of 20 and 30 years. The first symptoms in Déjerine and Sottas's case^{927 July 23} showed themselves at an exceptionally late age. The patient was well up to the age of 53, at which time weakness in the right hand set in; only two and a half years later he noticed that this hand was growing thinner and that the extension of the fingers was not easily accomplished; yet he was able to work for six years after the appearance of the first symptoms. At that time he entered the Hospital of Bicêtre, when he showed muscular atrophy of the right hand and of the right forearm. Tactile sensibility remained, with loss of feeling as regards temperature and pain throughout the right upper extremity and the upper half of the thorax on the right side. Over the

rest of the body, with the exception of the face, thermal sensation was slightly diminished; highly concentrated contraction of the field of vision of both eyes. The patient remained under treatment up to the time of death, which was caused by pneumonia, at the age of 63. The muscular atrophy was only slightly increased, the disturbances of sensibility remaining unchanged. Upon post-mortem, a syringomyelitic cavity was found in the right posterior horn, extending from the second cervical nerve to the upper lumbar region. Although such decidedly unilateral syringomyelia is of rare occurrence, yet, on account of the peculiar dissociation of the sense of feeling, a correct diagnosis was made during life. As regards the relatively advanced age of the patient, attention may be called to the case described by Redlich, of Vienna,⁴⁰⁵_{v.12} which was most carefully examined anatomically (cavity in the spinal cord extending from the beginning of the medulla oblongata to the lower dorsal portion of the cord, being largest in the cervical portion, and being, farther down, more pronounced on the left side). The case in question was that of a woman in whom the first signs of weakness, in the right shoulder, presented themselves at the age of 56, and who died at the age of 60, of dysentery. Redlich also describes a second case of syringomyelia, as well as three cases of hydromyelitis.

Grasset²¹¹⁴ gives an account of a case of Morvan's disease, and herein again advances the opinion that this disease can be distinguished from syringomyelia, although he admits that the formation of cavities in the spinal cord may induce the symptoms of Morvan's disease, and that, on the contrary, the typical symptoms of syringomyelia may also occur in Morvan's disease. Pervés,²¹¹⁵ also, clinically and anatomically, considers these two affections as distinct diseases.

J. Hughlings Jackson and J. Galloway, of London,⁶_{Feb.20} give an account of a case of a female patient, aged 47, in whom, twenty-five years after an attack of sun-stroke (?), the first symptoms of syringomyelia—disturbances of sensibility in the right arm and hand—presented themselves, following a period of unconsciousness lasting two hours. Later on, impaired sensation, in regard to temperature and pain, extended over the entire right side of the body, from the tenth dorsal vertebra upward, including the face and the mucous membrane of the mouth; muscular atrophy on the right side and

marked chronic arthritis deformans in the right elbow-joint were also present. The diseases of the joints occurring in the upper extremities during syringomyelia have been frequently mentioned. Nissen, of Halle, ³³⁶_{Aug. 13} quotes two cases characterized by such changes in the shoulder-joint occurring during syringomyelia. In the first case there was pronounced swelling of the left shoulder-joint, with a total absence of pain, even upon excessive movement of the left arm, which led to the opinion that the disease in question was a neuropathic affection of the joint; the examination led, indeed, to the discovery of disturbances of which the patient had not been cognizant, and which pointed to a diagnosis of syringomyelia. Although, in the majority of cases already described of diseases of the joint in syringomyelia, the true arthropathic condition was affected by pyæmic processes, in both of Nissen's cases the joint affection presented, to a certain extent, an aseptic form. These joint changes are, moreover, markedly characteristic: enlargement of the capsular ligament, looseness of the joint, thickening and villous changes of the capsule, change of form at the ends of bones, and lodgment of bony spicules in the capsular wall.

Stembo, of St. Petersburg, ²¹_{Aug. 27} cites the case of a male patient, aged 40, in which there was bilateral hygromata olecrani, more pronounced on the right side than on the left. The case quoted by A. Schmidt, of Breslau, ⁶⁹_{June 30} is interesting from the fact that, apart from the symptoms usually presenting themselves in syringomyelia, there was also paralysis of the spinal accessory nerve on both sides (atrophy of the lower portion of the musc. cucullares, marked paresis of the upper portion of this muscle and the sternocleido-mastoidei, with complete paralysis of the right vocal cord and partial paralysis of the left). Two other cases of syringomyelia are mentioned by Walter Vought, of New York. ¹_{Nov. 21, '91; June 11} The second of these was combined with hydrocephalus, dating from birth. A further case is quoted by Pagenstecher, of Greifswald, ³⁴_{June 7} occurring in a female patient aged 26, in whom, since birth, the sacrum was markedly scoliotic, with constantly increasing spina bifida. Attention must be called to the fact that, in many of the cases mentioned, the existence of scoliosis or kypho-scoliosis was indicated. Hallion ⁴⁵²_{Nos. 3, 4} corroborates the statements concerning the very frequent occurrence of scoliotic curvatures of the vertebral column in syringomyelia. Moreover, in all the last-mentioned

cases, as well as in those of A. Gimeno, of Madrid,⁵⁵³ and Desnos,³_{Dec.16,'91} post-mortem examinations had not been made, without which, of course, only an approximately true diagnosis can be given. Eisenlohr, of Hamburg,³⁶⁸_{v.23} and Nonne, of Hamburg,³⁶⁸_{v.24} have quoted tabes with central gliomatosis or syringomyelitis, and Redlich, of Vienna,⁴⁰⁵_{v.12} describes tabes with hydromyelia. H. Roger, of Paris,⁹²_{Aug.10} found in a rabbit a cavity similar to, but not quite identical with, those occurring in syringomyelia.

AMYOTROPHIC LATERAL SCLEROSIS.

Although this disease is strongly characterized, both clinically as well as anatomically, there yet remain some doubtful points, the solution of which is the more difficult since the affection is, on the whole, very rare. The few cases observed, therefore, must be carefully and thoroughly studied. P. Marie, of Paris, is one of those most versed in this affection; he gives²¹¹⁶ a complete and connected account of four cases, with photographic representations. The spastic symptoms may vary greatly as to intensity, or they may be altogether absent; but tendon reflexes of the upper and lower extremities will always be exaggerated. In those cases in which the disease progresses upward through the spinal cord, reaching the medulla oblongata, and eventually the cerebrum, the masseter reflex is also intensified. Marie further calls attention to the fact that, according to his observations, psychic disturbances are of such frequent occurrence in amyotrophic lateral sclerosis that they may be regarded as a characteristic symptom. These psychic disturbances present the following features: mental weakness, childishness, credulity, together with great emotional excitability; the patients are prone to indulge in weeping and laughter without cause. The average duration of the disease is from eighteen months to two years; in regard to etiology, nothing can be stated with certainty. P. Cramer, of Mühlheim,²¹¹⁷ describes the following case: In an otherwise healthy female patient, aged 46 years, severe pain was felt in the throat after a cold, and then in the hands, and later a general weakness set in. Finally, there was most pronounced atrophy of the smaller muscles of the hand, the muscles of the forearm, and, to a lesser degree, those of the upper arm; the muscles of the left arm were contracted. The muscles of the shoulders were decidedly atrophic, as well as those

of the tongue and those of the lips, to a lesser degree. The atrophy of the lower extremities was but slight, with moderate tension upon passive movement. All the tendon reflexes were intensified. There was no disturbances of sensibility, and speech was aphonic to the greatest degree. The patient died, fourteen months after the beginning of the disease, of pneumonia. The post-mortem showed the well-known type of amyotrophic lateral sclerosis,—that is to say, degeneration of the nerve-fibres of the spinal cord, principally those of the pyramidal tracts, with atrophy of many of the cells in the anterior horn. In the brain the degeneration of the pyramidal tracts could be followed as far as the pes pedunculi, but not into the inner capsule. The nuclei of the nervi hypoglossi were considerably degenerated, those of the nervi faciales less so.

Mingazzini, of Rome, describes an exceptionally complete examination of the spinal cord, in a case of amyotrophic lateral sclerosis,⁵⁹¹ occurring in a male aged 40 years. Maury and, last of all, Pellizzi⁵⁹¹ have advanced the opinion that the postero-lateral cell-group of the anterior horn is of sensible importance, and that it, therefore, does not become atrophied in amyotrophic lateral sclerosis, the sensibility remaining intact. This opinion must be disputed, since Mingazzini found this cell-group completely disturbed, in his case, notwithstanding the fact that no disturbances of sensibility were noticed during life. According to his opinion, all the anterior-horn cells throw out anterior-root fibres; nevertheless, this postero-lateral cell-group appears to be, also, in connection with the collaterals of the posterior-root fibres; it would, therefore, even in the most simple reflex movements, go into action mainly, as the nerve-cells of this group are excited through the posterior roots; they may be preserved from the amyotrophic lateral sclerosis for a considerable time, while the other cell-groups, which are only in connection (beside the anterior roots) with the pyramidal tracts (in which the disease is principally located), have long since become degenerated. Marie and Mingazzini call attention to the almost complete absence of the nerve-plexus in the anterior horns. The former, however, emphasizes the fact that the degeneration of the white substance of the spinal cord is in no way limited to the pyramidal tracts, but that, in and about them only, it is most pronounced. The degeneration may be more or less plainly dissemi-

nated throughout the entire transverse section of the spinal cord, and is usually most conspicuous in Goll's tract. The case quoted by Adamkiewicz, of Vienna, ⁶⁵⁰_{Nov. 26, 27} which he terms *degeneratio descendens amyotrophica unilateralis*, may also be here mentioned. The patient was a girl, aged 17 years, who presented, on the right side of the body, all the symptoms of amyotrophic lateral sclerosis. Adamkiewicz is, however, of the opinion that the cause of the illness was a tumor which could be located in the right half of the cervical cord, as, in the beginning, all of the irritation phenomena occurred in the right hand. Oppenheim, of Berlin, describes four cases of amyotrophic lateral sclerosis, ⁶⁸_{Aug.} of which one presented the acute form of this disease. The man was only enabled, by the most extraordinary exertions, to save his life from a fire on ship-board. Immediately afterward paresis of all four extremities set in. Apart from the typical symptoms, there were also certain disturbances of sensibility: girdle pains, hyperæsthesia in the left thoracic region for all irritants, and in the right lower leg and foot anæsthesia as regards temperature and pain. It was shown that in the upper dorsal portion of the cord the degeneration included the left posterior horn, and also, partially, the posterior roots.

ANTERIOR POLIOMYELITIS.

Marie, of Paris, ²¹¹⁶ strongly advances the opinion that acute poliomyelitis in children may be referred to infection; the fact that this disease very frequently occurs during the progress of or after an infectious malady would point to this conclusion, as well as the repeated observation of wide-spread epidemics of this disease of the spinal cord. He finds a further proof in favor of his opinion—which, so far, has but few adherents in France—in his anatomical discoveries. He believes that disease of the vessels is the cause of the degeneration in the anterior horns, and that either the *arteriæ sulci anterioris* or the *arteriæ radicinæ anteriores* are involved. Marie is of the opinion that the infectious element reaches the spinal cord through the above-named arteries. A precise description of the “mechanism” through which the lesion of the spinal cord is brought about is undoubtedly most difficult; nevertheless, it is most probable that it could be referred to an infectious embolus or thrombosis, which is formed in one of the several *arteriæ sulci* (or *arteriæ radicinæ*). Marie here dwells with great

weight upon his former oft-repeated opinion that acute poliomyelitis in children is no systematic disease, and that it is analogous to or almost identical with cerebral paralysis. Regarding the nature of the infection, nothing can as yet be stated of a certainty as to whether specific microbes exist in infantile spinal paralysis. Eich²¹¹⁸ also writes concerning the infectious nature of this disease. He had under observation a child of $1\frac{1}{2}$ years, which was suffering from a violent attack of diphtheria. Upon the cessation of the local symptoms, paralysis of the upper portion of both arms suddenly set in. Later on, the right arm was much improved, but the paralysis became more complete in the left arm, and atrophy of the affected muscles occurred. Ehrenhaus and Posner, of Berlin,⁶⁹_{Nov. 19, '91} observed, in the case of a girl aged 11 years, previously in good health, a complete paralysis of the bladder, occurring after a febrile disease (angina),—consequently, also, upon an infectious basis. It was necessary to void the bladder by means of the catheter. After a few days there was also paresis of both legs, with total absence of tendon reflexes. The paralysis of the bladder disappeared after seven days, the paresis lasting several weeks, gradually giving way to the normal condition. When, as is seldom the case in poliomyelitis acuta anterior, the functions of the bladder also become affected, the condition usually occurs, as in the case of this girl, in the early period of the disease, and is only temporary. If we adhere to the infectious theory of spinal paralysis in children, it is evident that the peripheral nerves may also be included in the infection. We meet, then, with cases no longer of very rare occurrence, in which there is a combination of acute poliomyelitis and multiple neuritis or perineuritis.

Gowers, of London,²¹¹⁹_{V. 24} saw a boy, aged 7 years, in whom, after a cold bath, the symptoms of infantile spinal paralysis occurred; paralysis of both upper extremities; one week later atrophy of the paralyzed muscles and loss of faradic excitability. From the beginning of the disease there was pain in the nerve-trunks in all the extremities, which disappeared after some weeks; increased patellar reflexes and pronounced foot-clonus were also observed. Gowers is of the opinion that the case in question was one of poliomyelitis anterior acuta cervicalis, with extension of the process to the lateral columns and combined with multiple perineuritis, probably induced by micro-organisms.

Eskridge, of Denver, Col., ¹_{Dec. 26, '91} observed a case of acute poliomyelitis in an adult, which was, probably, combined with slight perineuritis. A strong man, aged 30, became affected with general weakness (probably the result of overexertion), together with pains in the back and shoulders, and fever. After twelve hours there was slight paralysis of the hands, which soon extended throughout both upper extremities. Two days later there was complete paralysis of the right leg and paresis of the left, also pain in the lower extremities, without, however, any disturbances of sensibility; patellar reflexes were absent. One month after the beginning of the disease, atrophy of the muscles was noticeable.

Another case (the patient a male, aged 61) of poliomyelitis with changes in the peripheral nerves, and which was proven by a detailed post-mortem, is described by Bullen, of the Wakefield Asylum, ¹⁶⁶_{Jan}. The peripheral neuritis in this case, however, appears to have occurred much later than the disease of the anterior horns. Changes were also found in the posterior columns very much resembling those occurring in *tabes dorsalis*,—degeneration of the posterior roots and of Goll's columns. Besides the two last-quoted cases of poliomyelitis anterior acuta adultorum, many others have been cited, of which a few are worthy of special interest.

Loweran, of Val de Grâce, ³¹_{Mar. 31} finds the disease of frequent occurrence in soldiers, and refers this fact to the severe colds which are so frequently contracted in active service. Four of his cases unquestionably occurred in this manner; in the fifth case the first symptoms followed immediately after a severe attack of intermittent fever. W. Krauss, of Buffalo, ²⁴²_{Nov., '91} quotes the case of a male patient aged 43; on his father's side, three adult members of the family had died of small-pox; on the mother's side there was psychic disturbance, tendency to melancholy and suicide. The patient himself had measles two years before; since then his general health was affected; he grew careless and work became a burden to him. Krauss is therefore of the opinion that the former disease (measles) may be connected with the poliomyelitis occurring so much later, inasmuch as in an hereditary neuropathic or psychopathic condition any infectious disease may be the cause of an organic nervous malady. Another case of acute anterior poliomyelitis in an adult (male, 22 years) is described by Eskridge, ⁹_{Feb. 20} of Denver,—unfortunately, as in the majority of cases, without post-

mortem examination. With regard to the results of post-mortem examinations (in children as well as adults), attention may be called to the fact that, according to Joffroy and Achard⁴⁵⁷₉₁ the anterior roots frequently appear normal under the microscope, although decidedly diminished in size. This may be explained by the fact that the degenerated fibres have disappeared and only the sound ones remain.

Chronic poliomyelitis is described by Darkschewitch, of Moscow,⁹⁴_{July} in the case of a male patient aged 40 years. Upon post-mortem there was found, besides the atrophy of numerous anterior-horn cells, degeneration, to a slight extent, of the lateral and posterior columns. In a case cited by Oppenheim, of Berlin,⁶⁸_{Aug.} marked degeneration of Burdach's columns was found. Without post-mortem, a case of subacute poliomyelitis is described by Russ, of Jassy.²²³_{No.6,'91} Lockwood, of New York,¹_{June 25} quotes a case of chronic ascending anterior poliomyelitis, in which, however, the examination of the spinal cord led to results which scarcely sufficed to confirm this diagnosis. Hoffmann, of Heidelberg,³⁶⁸_{V.24,No.2} relates that, in a family of fourteen children, six were affected by the same disease, and, in another family, two out of six children were ill with the following symptoms: During the first year of their life, subacute or chronic paralysis of the muscles of the back, pelvis, and thigh occurred; after a varying lapse of time, the muscles of the throat and of the upper extremities, as well as those of the calves, became paralyzed. Degenerative atrophy of the muscles, with a "degeneration reaction," is present; tendon reflexes are absent, also cutaneous reflexes; the sphincter functions remain normal, and sensibility intact. Death invariably occurred between the ages of one and four years, so that no child reached its fifth year, and resulted from paralysis of the respiratory muscles, with secondary affections of the lungs. An hereditary tendency to nervous diseases was not indicated. The anterior-root fibres were very thin and noticeably degenerated throughout; in the ganglion cells of the anterior horns changes were noticed, an exact description of which will be given by the author in a later article.

Chauncey Rea Burr, of Boston,¹⁹⁹_{Sept.8} had occasion to observe nine cases of the rather rare obstetric paralysis, or spinal birth-palsy. This only occurs in children who were born with difficulty, and is characterized by a peculiar and more or less diffused paralysis

of one arm, usually the right; bending of the elbow and lateral extension are impossible in all cases, and extension of the fingers in the majority of cases. If the children live, development of the arm is retarded. Disturbances of sensibility do not occur. The mental development of such children is normal. The author does not locate the seat of the malady in the peripheral nerves, but rather in the spinal cord; he is of the opinion that birth-palsy is a special and rare form of acute anterior poliomyelitis. In retarded or impeded births decided congestion occurs in the central nervous system of the child, and if, through the nerves of one extremity, tension of the congested spinal cord is exerted, it is easily understood that this local irritation may here occasion severe injury. The prognosis is, contrary to that in peripheral compression paralysis, very unfavorable.

INFANTILE SPASMODIC PARAPLEGIA (LITTLE'S PARALYSIS).

Déjerine, of Paris, ¹¹⁸_{Apr.} very fully describes this, generally speaking, but little known disease, and quotes the case of a male patient aged 47. It is a congenital malady, which shows itself, during the first few days after birth, in a certain stiffness of the limbs, usually only becoming more pronounced later on; it is also frequently accompanied by an abnormal position of the limbs; for instance, the knees are close to one another, and can only be separated with difficulty. During the further progress of the disease, this contraction becomes more pronounced, usually involving the four extremities and the face. There is marked pes varo equinus, no true paralysis, no atrophy, and no disturbances of sensibility and bladder symptoms; the intelligence, on the contrary, frequently suffers. The disease mostly occurs in children whose birth was difficult (with or without instruments).

The pathogenesis and pathological anatomy of spastic infantile paralysis (or spasmodic congenital rigidity) are not yet clearly defined; they seem to be most nearly allied to those of spastic spinal paralysis, from which, however, they are distinguished by several not unimportant points. The prognosis is rather unfavorable, there being but rarely a noteworthy improvement. Augier, of Lille, ²²⁰_{Dec 18, '91} cites two other cases, and Hunter ²¹³_{July} also describes the disease. Krafft-Ebing, of Vienna, ⁸_{Nov. 24} speaks of a family (two boys and one girl), in whom, in early childhood, spastic symptoms pre-

sented themselves in both lower extremities; no hereditary cause is indicated. [During the discussion following this report, I advanced the opinion that these three cases are closely allied to the well-known cases of infantile spastic paralysis, and that they present the spinal form of the disease.—Ed.]

Vincent²¹¹_{June 12} has observed a child having strongly-developed pes varo equinus, resulting from this disease; he practiced tenotomy of the tendons of Achilles with very satisfactory results. Weinlechner, of Vienna,⁸_{Nov. 24} also improved the exaggerated contraction of these muscles by myotomy of the adductors.

Marie, of Paris,²¹¹⁶ in the chapters relating to spastic spinal paralysis, treats very fully, and almost exclusively, of the infantile form. He also refers this disease to a deficient development (not degeneration) of the pyramidal tracts. Retaining the rather unsuitable name introduced by Charcot,—*tabes dorsal spasmodique*,—he distinguishes from this true form the *état tabéto-spasmodique* (tabetic-spasmodic condition). In this category he includes all those cases which may be referred to injury during birth, or to a disturbance of the motor region of the cerebral cortex, induced by inflammatory disease.

TABES DORSALIS.

Etiology.—Erb, of Heidelberg,²¹²⁰ gives a very comprehensive account of the causes of tabes, based upon a personal experience of more than six hundred cases. Erb finds syphilis foremost among the causes promoting this disease. Among the males, 89 per cent. were found to have been previously infected; and even among the remaining 11 per cent. there were some which were suspiciously akin to syphilis. In all other male patients, above the age of 25 years, suffering from other diseases,—that is to say, not having tabes, and not directly suffering from syphilis,—only 22.5 per cent. showed previous syphilitic infection. The author is therefore led to the conclusion that a previous syphilitic infection is one of the most constant and important factors. This becomes the more plain if we examine statistically all other causes concerned in the etiology. Direct heredity is of nearly no importance, and the so-called neuropathic condition, which, in the upper classes, is of very frequent occurrence, was only found in 28 per cent. A nervous condition in the patients existing before the tabes appears to exert a greater influence (42 per cent.). Cold

was the primary cause in 34.5 per cent., fatigue in 27 per cent., sexual excesses in 15.8 per cent., excessive use of alcohol and tobacco in 18 per cent. Traumatism appears to be the direct cause of tabes in only 5 per cent., but would seem to fill a noticeable place in the etiology of this disease. Frequently, of course, several of these causes are combined. Tabes may, therefore, in the majority of cases, be referred to syphilis, and infection is not only a predisposing cause, but we may also consider that the disease is a direct consequence of syphilis, and a manifestation of its tertiary stage. It may be inferred that the degenerative changes occurring in tabes are the result of a toxic process induced by the metamorphosis—products of syphilis. Raymond, of Paris, ⁷³_{June 11} also confirms the statement that the majority of tabetic patients have formerly had syphilis; he does not, however, consider it as proven, but rather as most probable that syphilis may, directly or indirectly, cause the development of tabes. Raymond also admits the intervention of an hereditary neuropathic disposition in its development, while he, as well as Erb, considers direct heredity as a very exceptional cause.

Gajkiewicz, of Warsaw, ²¹²¹ has had more than 400 cases of tabes under observation, in about 90 per cent. of which there was a previous history of syphilis. Minor, of Moscow, ⁷⁵_{July 1} brings a further ethnographic proof of the relation existing between syphilis and tabes, comprising 1642 cases of nervous disease of all kinds, there being 496 male and 264 female Russians; also 449 male and 433 female Jews. Among the male Russians 25 per cent. were syphilitic, and among the females 11.4 per cent.; among the Jews only 7 per cent., and among the Jewesses only 1.5 per cent. Among the Russians of both sexes the proportion of tabes was five times greater than among the Jews, this corresponding with the much more frequent syphilitic infection existing among the former, which fact would be of great weight in proving the relation existing between the two diseases. According to the observations of Burr, ²¹²_{Apr.} tabes is of very rare occurrence among true negroes. [I am not aware whether syphilis is of equally rare occurrence among them.—ED.] Marie, of Paris, ²¹¹⁶ in his very complete and minute description of tabes, also indicates syphilis as the only important etiological factor, being the true and almost the sole cause; all other influences being of comparatively little importance. He lays

no stress upon trauma, as, upon minute investigation, it will generally be found that the primary indications of tabes were present before the occurrence of traumatism. Besides syphilis the nervous condition of *hérédité nerveuse* may alone be considered as an important primary cause. Marie is a pupil of Charcot, who always laid great weight upon this nervous condition as a cause of the development of tabes; for instance, he points to the occurrence of diabetes among the antecedents of tabetic patients. Among the reasons advanced, against the importance of syphilis in the etiology of tabes, is the fact that pathological anatomy does not warrant this opinion. It has, however, been variously pointed out that the anatomical changes in tabes (and in dementia paralytica as well, which bears similar relation to syphilis) are in no way contrary to such an opinion; but that, on the other hand, besides the ordinary anatomical indications of tabes, there are, occasionally, also found some which must be regarded as manifest syphilitic changes.

Dinkler, of Heidelberg, ³⁶⁸_{V.24, No.2} describes such a case. The patient in question was a Dutchman, aged 42, in whom the first symptoms of tabes presented themselves nine years after infection. Notwithstanding an energetic inunction treatment, there was no improvement, and upon post-mortem the cause of death was found to have been hæmorrhage of the right arteria fossæ Sylvii; there were also found meningitis spinalis syphilitica and arachnitis gummosa, as well as arteritis syphilitica in the arteries of the brain and the spinal cord, and the usual tabetic degenerations. Sydney Kuh, of Chicago, ⁴⁷_{v.14} describes a similar case, with syphilitic meningitis cerebrospinalis and specific disease of the vessels. As is well known, the first symptoms of tabes only occur several years after syphilitic infection, most frequently from the sixth to the tenth year; only very rarely does tabes show itself in the florid stage of syphilis. Such a case of early tabes syphilitica is quoted by Pauly, of Lyons. ²¹¹_{June 12} The first symptoms of tabes showed themselves four months after the chancre, in the form of laryngeal crises, and in the space of five and a half months tabes was fully developed; the course of the disease, notwithstanding continuous antisymphilitic treatment, was very rapid. Alfaro, of Mexico, ¹⁷⁹_{Dec.15, '91} describes a case of tabes resulting from hereditary syphilis. Hildebrandt, of Berlin, ²¹²³ cites ten cases of true tabes in childhood. In six cases the disease began before the tenth year, and in four between the tenth

and fourteenth years. As in the majority of cases hereditary syphilis was not indicated, he contradicts the etiological relation existing between the two.

Symptomatology. (a) *Initial Symptoms.*—When it is possible to diagnose tabes in its early stages, the patient can be much relieved by prompt and early therapeutic measures; however, in this early stage the correct diagnosis is made with difficulty, and necessitates a particularly minute and careful examination; or, as Fournier, of Paris, ¹⁴_{Feb. 10} expresses himself, one must, for this, make use of particularly sensitive reactions. He indicates the following as important primary symptoms: 1. The absence of the patellar reflexes. 2. Romberg's symptom, first showing itself in a very slight swaying, which frequently does not occur instantly. 3. The so-called stair symptom,—*signe de l'escalier*,—which consists of a certain hesitancy in descending steps; the patient is afraid of falling, and is obliged to hold on to the balustrade. 4. The symptom of crossing the legs; when the patient sits down, and, in order to assume a comfortable position, crosses his legs, the one leg is raised unnecessarily high, and is only then crossed over the other. 5. The symptom upon beginning to walk. Upon causing the patient, who is seated, to stand up and walk, it will be seen directly that, before he begins to walk, he will require a certain time in order to establish his equilibrium; also, the well-known halt-sign, in which, upon commanding the patient, who is walking, to suddenly stand still, the upper portion of the body will sway to and fro. (The swaying of the body upon sudden turning also belongs to this symptom.) 6. The standing upon one foot. In the early stages of tabes the patient sways perceptibly when asked to stand upon one foot, and this becomes quite impossible to him when he is told to close his eyes. Marie proposes to designate the trial of the above as *exercice à la Fournier*.

Ott. Rosenbach, of Breslau, ⁶⁸_{Apr.} who also emphasizes the necessity of an early diagnosis of tabes, calls attention to two early symptoms: 1. The epigastrium reflex appears more pronounced; the abdominal muscles contract when the finger-nail is passed over the skin of the abdomen; this epigastrium reflex is undoubtedly, to a certain degree, antagonistic to the patellar reflex. When in tabes the abdominal reflex is more pronounced, the patellar reflex is lessened. We find in hemiplegia the contrary occurring on the

paralyzed side. 2. The second symptom, which is already noticeable at a very early stage, is the incapacity to raise one's self on tiptoes; the eyes being closed. A case of tabes is mentioned by Hutchinson,⁸⁰⁶ July, in which severe lancinating pains in both legs, during a period of twenty-five years, was the only symptom of the latent tabes, while in another case the entire series of symptoms began with incontinence of urine. In the case quoted by Habermann,²¹²³ 91 tabes was preceded by ringing in the ears and deafness. Howell Pershing, of Denver,⁹ Mar. 26, cites five cases in which atrophy of the optic nerve preceded the usual symptoms of tabes during a long period (up to twenty-five years); it would appear, moreover, that in those cases in which the preliminary symptom of the disease is atrophy of the optic nerves, the other symptoms, for instance, ataxia, are developed much more mildly and slowly. Charcot, of Paris,⁴⁵² No. 3, presents a tabetic patient in whom the disease first showed itself as arthritis tabetica in the hip-joint. He again calls attention to the fact that the most varied symptoms may precede the entire succession of usual symptoms. It astonishes me that, in the majority of text-books, a pronounced, and also well-known, initial symptom of tabes is not mentioned,—i.e., the inability to walk backward.

(b) *Disturbances of Sensibility.*—Lannois,³ Aug. 31, points out that the symptom described by Pitres as haphalgesia (sensation of pain upon delicate touching with certain substances) is not, as it is usually supposed to be, a pathognomonic symptom of hysteria, but may also occur in tabetic patients. He found that a female patient with already well-advanced tabes always experienced acute pain whenever she was touched by any object made of copper. After a few days this symptom disappeared. M. Weiss, of Prague,¹¹³ Nos. 46-48, has observed pronounced allochiria in the case of a female patient, aged 54 years, suffering from tabes dorsalis; not only stitches, but temperature, irritation, and passive movement were felt in the same locality on the opposite side of the body. Marie, of Paris,²¹¹⁶ describes as "sensitive tetanus" a peculiar disturbance of sensibility occurring in some tabetic patients; a number of pricks following each other, not too slowly, are experienced by the patient as a continuous pain, and not as separate pricks.

(c) *Disturbances of the Genito-Urinary System.*—Bitot and Sabrazès, of Bordeaux,⁹² Nov., 91, found, among thirty-nine tabetic pa-

tients, twenty-eight times the occurrence of hypalgesia or analgesia of one or both testicles; in three bilateral, and in two unilateral, atrophy of the testicles was also present. A similar account has been given by B. A. Tatartscheff, of Macedonia,²¹²⁴ among thirty-five tabetic patients. In eleven, both testicles were normal; in four, there was bilateral analgesia; in four, bilateral hyperæsthesia; in two, there was atrophy of both testicles; in two, atrophy of only the right testicle; in seven, diminished sensibility of the penis; and in eleven, impotence. The disturbances occurring in the testicles were the more pronounced according to the progress of the atactic disturbances. Analgesia of the testicles and failure of the cremaster reflex are in no way parallel; both conditions are entirely independent of each other. Concerning the emptying of the bladder, Tatartscheff found in fifteen patients incontinence; in three, retention; and in one, ischuria paradoxa (constant dropping of urine from a full bladder). Ketli, of Budapest, dwells upon the disturbances in micturition, especially in the early stages, and refers them to disturbances of sensibility in the bladder-walls. J. Wagner, of Graz,⁸_{Nov.24} has found, in patients suffering from tabes dorsalis, and also in certain cases of dementia paralytica, a condition of the bladder in which it can be voided by compression, only, however, when the patellar reflex had subsided. If, in such cases of paralysis of the bladder, occurring in diseases of the spinal cord, an appropriate pressure is exerted upon the abdomen, in the region of the bladder, it is often possible to cause the urine to flow, without its being necessary to use the catheter.

(d) *Trophic Disturbances*.—According to Rosin, of Breslau,¹⁰⁰⁵_{v.1} atrophy of the jaws, with loss of the teeth, frequently occurs in tabetic patients; the lower jaw more rarely becomes atrophic than the upper; the mucous membrane in the atrophic region is anæsthetic. In one case, in which syphilis was certainly out of the question, Barrs, of Leeds,²_{Apr.9} found a progressive destruction of the nasal septum and of the hard palate, which had begun in an early stage of the tabetic disease. Scheiber, of Budapest,⁸_{No.11} found pronounced hemiatrophia cruciata in a tabetic patient; the atrophic symptoms had been present since the third year of age; the skull was decidedly smaller on the left side; the facial muscles, including those of the tongue, were relaxed and atrophied on this side; the chest and the upper extremities were smaller on the right side—

the forearm and the hand, in particular, were decidedly atrophic. The hemiatrophy could be referred to a defective development, and need, therefore, not be considered as in direct relation to the tabetic disease. Déjerine, of Paris,⁷³³ is of the opinion that from 10 to 12 per cent. of all tabetic patients are affected with muscular atrophy. This tabetic muscular atrophy is principally characterized by the great slowness of its development; fibrillary contractions and degeneration reactions are not present. Kornfeld, of Vienna,⁸⁴_{Nov.5} has observed, in connection with acute, one-sided, peroneal paralysis, symmetrical gangrene of the distal phalanges of the first four toes of each foot. In the spinal cord very pronounced tabes was found; there was also neuritis of the nervi peronei. Tabetic diseases of the joints are very minutely described in the already frequently-quoted text-book of Marie.²¹¹⁶ Charcot's case, in which bilateral coxitis was the first noticeable symptom of the beginning of tabes, has been already mentioned. Klemm, of Riga,²¹_{No.28} describes two cases of tabetic foot.

(e) *Motor Disturbances.*—Minor¹¹⁴_{v.19} cites the case of a female, aged 26 years, in whom, three years after syphilitic infection, paraplegia of the lower extremities and symptoms of tabes presented themselves. The paraplegia and meningeal symptoms disappeared upon the use of mercury, while the tabetic symptoms persisted. Later on, slowly-developing hemiplegia and aphasia occurred. Upon post-mortem, the tabetic lesions in the spinal cord were found to be markedly developed. There was also found in the cerebral vessels the characteristic indication of syphilis, a thrombus in the arteria basilaris, with wide-spread softening of the left hemisphere; in the spinal cord, beside the leptomenigitis in the lateral columns of the cervical cord, there were three small, old myelitic centres, which were the probable cause of the first temporary paraplegia. Goldscheider¹¹⁴_{v.19} describes a case of tabes in a female patient, aged 40 years, in which there was also increasing paralysis and atrophy of the lower extremities. He refers these symptoms to atrophy of the peripheral nerves of the lower extremities, which was also proven by the post-mortem. Porta, of Milan⁶⁵⁵ has observed, in two female tabetic patients, athetosis of the right hand. Placzek, of Berlin,⁶⁹_{July 7} saw, in a male patient aged 52 years, the very unusual combination of tabes with paralysis agitans. Grabower, of Berlin,⁶⁹_{July 7} treats fully of the paralyses of the larynx

observed during the course of tabes. Zenner, of Cincinnati,<sup>426
Dec., '91</sup> gives the history of a tabetic patient who was subject to attacks of tachycardia, with accelerated breathing without dyspnoea; these attacks occurred several times a day and lasted about half an hour. Zenner wishes to include these attacks under the term of "cardiac crises," among the numerous other tabetic crises. Rendu, of Paris,<sup>11
Mar. 16</sup> had occasion to observe a patient in whom the symptom of paralysis of the eye-muscles occurred in the first stage of tabes; all the external muscles innervated by the nervi oculomotorius became paralyzed later on.

Pathological Anatomy.—Since tabes dorsalis is a disease of relatively frequent occurrence, it has been inferred that, upon an earnest and careful study of the abundant pathologico-anatomical material, the true nature of this nervous affection could be determined. Of late years, however, the minute researches upon this subject have brought to light facts which only add to the difficulty instead of lessening it; from the peripheral nerve-ends up to the cerebral cortex, almost every portion of the nervous system has been referred to as the main seat of the trouble. On the other hand, the latest publications concerning the pathologico-anatomical changes in tabes (Marie, of Paris²¹¹⁶; Redlich, of Vienna<sup>1074
v. 11</sup>) have again led to a more simple and precise interpretation; they attach the greatest weight to the diseased condition of the posterior roots and their intra-spinal continuations, without more nearly considering the precise spot at which the posterior roots first became diseased, whether it be the periphery, the spinal cord at any point throughout its entire length, or any other locality. Déjerine, of Paris,<sup>3
Dec. 14</sup> claims for himself the priority of this opinion; he considers himself as the first to have called attention to the fact that tabes is to be regarded as a primary disease of the posterior roots, but the changes occurring in the spinal cord only as a secondary degeneration in the intra-medullar course of the posterior roots; upon minute examination, simple atrophy of the posterior roots will be found in all cases of tabes. Marie<sup>73
Dec. 24</sup> most emphatically denies Déjerine's claims of priority.

Redlich studies first the intra-spinal course of the posterior-root fibres and shows, in a great number of tabetic spinal cords, that the affection of the posterior column and of the posterior horn, in this disease, conforms itself in every detail to this intra-

spinal course of the posterior-root fibres; basing our views upon this supposition, it becomes possible to arrive at a conclusion concerning the tabetic spinal cord. The various posterior roots do not, however, become simultaneously diseased; usually the process begins in the region of the lumbar nerves and gradually ascends toward the cervical cord; at the same time, one or several roots at different heights may not become involved. According to whichever root region may be diseased, the changes shown in the spinal cord, upon cross-section, will vary. Marie has arrived at similar conclusions, which he states as follows: 'The changes found in the tabetic spinal cord are in no way the result of a primary systematic myelopathy. They are only the expression of a progressive degeneration of the posterior-root fibres; these medullary changes in tabes occur in segments, while each diseased posterior root furnishes a new contingent of degenerated fibres to the spinal cord. Marie would accept, as the cause of the degeneration of the posterior roots, a diseased condition of the spinal ganglion cells, as well as those of the peripheral ganglia,—a condition possibly brought about by syphilitic virus.

Wollenberg, of Halle,³⁶⁸ in his very complete examinations of fourteen cases of tabes, also found, in all of them, changes in the ganglion cells of the spinal ganglia (fatty degeneration and opacity of the protoplasm); these changes in the ganglion cells, however, were relatively insignificant, in comparison to the much greater changes occurring in the nerve-fibres and in the interstitial connective tissue. It must not, therefore, be accepted that the primary disease in tabes originates from the cells of the spinal ganglion; probably these only become secondarily diseased, following perineuritis, having occurred in the vicinity of the spinal-cord process.

W. B. Ransom,² has also arrived at nearly the same conclusions as Wollenberg; he found those fibres of the posterior roots which enter the spinal ganglion at the proximal pole degenerated, while the peripheral nerves starting from the distal pole were normal; the interstitial connective tissue was augmented, and the nerve-cells somewhat diminished. In a case of tabes, in which tactile sensibility appeared normal, a nerve-fasciculus was found in the posterior roots which was not degenerated, and which, without entering into the spinal ganglion, followed alongside of the same

to the posterior root. At all events, not all the fibres of the posterior roots become similarly degenerated in tabes. Blocq, of Paris,³⁶³_{Mar.} has shown that the medial portions of the posterior roots, which consist of thicker fibres, first become diseased; these fibres also develop very early (from the seventh to the eighth embryonic month), and are to be regarded as the conduction-path of the muscular sense. Kraus, of Wiesbaden,³⁶⁸_{v.23} describes very complete and minute examinations regarding the spinal cord in tabes.

Several authors give their attention to the minute histological changes occurring in the spinal cord in tabes, among them Pfeiffer,²¹²⁵ Marinescu,⁸¹_{Dec.19,91} and Dana, of New York.¹_{Jan.9} The last named gives an especially clear and comprehensive representation of the sclerotic processes of the spinal cord. As regards tabes in particular, it is to be considered as a primary sclerosis by successive degeneration of the nerve-fibres and cells. Its progressive character admits of the supposition that a poison may be present in the body, which constantly influences the diseased tissue (toxin theory). "It is interesting, in connection therewith, to note that degenerative diseases do not follow those infections which do not confer long immunity, such as diphtheria, sepsis, erysipelas, tuberculosis; while diseases that do confer long immunity, like typhoid fever, measles, scarlatina, small-pox, syphilis, etc., are most likely to set up degenerative changes." Since this immunity is brought about by the presence of an antitoxin in the blood, it may be admitted that this same agent, which acts as a protection against the recurrence of the infection, may, on the contrary, elsewhere induce degenerative processes (as, for example, in tabes). These sclerosis of the spinal cord are probably, furthermore, to a certain extent, to be referred to an overgrowth of the neuroglia (originating in the epiblast); the connective tissue is, however, probably also involved (from the mesoblast), "and we may have to speak of a posterior spinal fibro-gliosis."

Nonne, of Hamburg,³⁶⁸_{v.24} found, in a case of tabes, together with the evidences of syphilis, a central glioma of the spinal cord (extending from the upper portion of the cervical cord to the tenth dorsal nerve), showing, at several points, a local connection with the degenerated posterior columns, thereby giving rise to the opinion that there was a genetic relation existing between the glioma and the hyperplasia of the neuroglia. [In conclusion, I

would express the now most prevalent opinion, in the words of Leyden, that tabes may be considered as a chronic atrophic degeneration process of the spinal cord, originating in the posterior roots and connecting itself with certain distinct embryonic fibre symptoms.—Ed.]

COMBINED SYSTEMIC DISEASE OF THE SPINAL CORD AND
HEREDITARY ATAXIA.

Sanger Browne, of Chicago, ⁴⁷_{No.58} has, during four generations of one family, observed more than twenty cases, which, it is true, differed in some points from the typical state of Friedreich's hereditary ataxia, but presented, nevertheless, an analogous condition of disease. The most important differences are the following: 1. In Browne's cases, the disease frequently occurred at a late period,—up to the forty-fifth year. 2. The majority of the patients were not females, though the disease is most frequently transmitted through the women. 3. Ptosis occurred frequently; nystagmus was absent. 4. Amblyopia and amaurosis occurred at an early stage. 5. The patellar reflex was augmented. 6. Club-foot and scoliosis were not observed. 7. Atony of the pupils generally occurred. Ormerod, of London, and Bernhard, of Berlin, who have also dwelt upon these differences, ⁴⁷_{No.58} nevertheless admit the great resemblance existing between Browne's cases and Friedreich's disease.

Cases of typical hereditary ataxia are quoted by D. Inglis, ²⁴²_{No.1} Friedenreich, ³⁷³_{Nos.2,3,91} Geigel, of Würzburg, ^{2126 and Szczypiorski. ³⁶¹_{No.3} The last-named case, which, however, differs widely from the accepted type, was characterized by the presence of ulcers on both thighs. In a case quoted by Arnold, of Heidelberg, ²⁰_{v.127} which in other respects presented great similarity to Friedreich's disease, heredity was not indicated; the tendon reflexes were augmented; disturbances of speech occurred; sensibility in regard to temperature and pain was lessened; tactile sensation and that of pressure were well preserved; there was spastic paralysis of the lower extremities. In the spinal cord there was marked degeneration of the pyramidal lateral columnar tract, less in the cerebellar lateral tract and diminishing toward the cerebellum. The posterior columns were more irregularly diseased, the upper portion being most affected.}

Münzer, of Prague, ⁸_{Jan.7} describes another interesting case of combined systematic spinal disease. The patient, a female aged 24 years, two weeks after an abortion, suffered from disturbances of speech and mastication, and weakness of the upper and lower extremities; there was no paræsthesia. After three months' treatment there was some improvement; after one year the case grew worse again, with augmentation of the weakness of the lower extremities and a feeling of tension. Pronounced objective spasms of the lower extremities occurred; rigidity of the muscles of the upper extremities was present, with slight atrophy; speech was slow and, later on, there was optic atrophy, and in one year and a half death ensued from marasmus. In the spinal cord, which, unfortunately, could be only partially examined, the pyramidal lateral and anterior columns were found degenerated, as well as the cerebellar lateral tract and Gower's tract. The posterior columns were almost intact. In the peripheral nerves, on the contrary, very many degenerated fibres were found. The anterior-horn cells appeared diminished in number.

THERAPEUTICS.

We must, unfortunately, admit that the results obtained by physicians, in the majority of diseases of the spinal cord, are, as yet, of but little importance. So far, the most favorable results published have been in *tabes dorsalis*; yet many of these even do not admit of critical tests, and are often only temporary conditions. We find, however, that the majority of works treating of the therapy of diseases of the spinal cord speak exclusively, or, at least, principally, of *tabes*, because in this field it is hoped most readily to arrive at some results. Leyden, of Berlin, ⁴_{Nos.17,18} most comprehensively describes the treatment of *tabes*. He is of the opinion that we are now enabled to benefit tabetic patients much more than formerly, because we are able to diagnose the disease in its earliest stages; it is true, however, that we can expect but little result from purely medicinal treatment, or from antisypilitic treatment. Leyden, therefore, persistently denies the relation of syphilis to *tabes*. He also expects but little result from massage, nerve tension, and suspension, with the exception of a certain psychic suggestive result. Electricity and baths may sometimes exert a beneficial influence; he attaches, however, the greatest importance to

a methodical gymnastic, hygienic, and dietetic treatment, a treatment which he terms "compensatory therapy." To this end we must accept the fact that no attempt is made to influence the anatomical process, but to alleviate or to entirely overcome its results, principally ataxia, by endeavoring to strengthen the equalizing, compensatory powers,—as the muscular functions. Finally, Leyden warns against the well-known antineuralgics and, above all, morphia, for the relief of the severe attacks of pain occurring in tabes. The use of the last-named drug is almost sure to bring about the morphia habit, and must, therefore, be avoided. Weber, of New York, ²¹²⁷_{Apr. 5} is of the opinion that we may expect some result from the antisyphilitic treatment, when the period between the infection and the appearance of tabetic symptoms has been but a short one; in such cases sulphur baths are also sometimes of use.

Depoux, of Paris, ⁷⁵¹_{June 4} presented to the Biological Society a patient whom he had exhibited one year before,—a severe case of tabes cured by the subcutaneous injection of Brown-Séquard's testicular fluid. The cure was not only permanent, but the muscular strength was also perceptibly increased. He presented another tabetic patient, who had been entirely cured in five months by the injection of testicular fluid, with the exception of the failure of the patellar reflexes. Brown-Séquard hereupon stated that Gibert, of Havre, had cured a tabetic patient by means of this method, and that Owspenski, of St. Petersburg, was enabled, by the same means, to almost entirely cure three or four cases. At the meeting of the Biological Society, October 22d, Depoux cited another case of tabes, which, after hardly three months' treatment by subcutaneous injections of the fluid, seemed almost entirely cured; only slight ocular disturbances and failure of the patellar reflexes yet remained. Brown-Séquard again remarked that, according to his method, a cure is almost always obtained in tabes. The cure is very nearly complete, with the exception of the patellar reflexes, which re-occurred in one single case; yet, in his opinion, the absence of this reflex is of no importance. He also related the (to say the least) somewhat remarkable history of a tabetic pregnant woman, in whom the fœtus was almost at the point of death. After the injection of the testicular fluid the fœtus became so energetic that it was necessary to omit the injections. A fine child was afterward born. We may as well here mention the

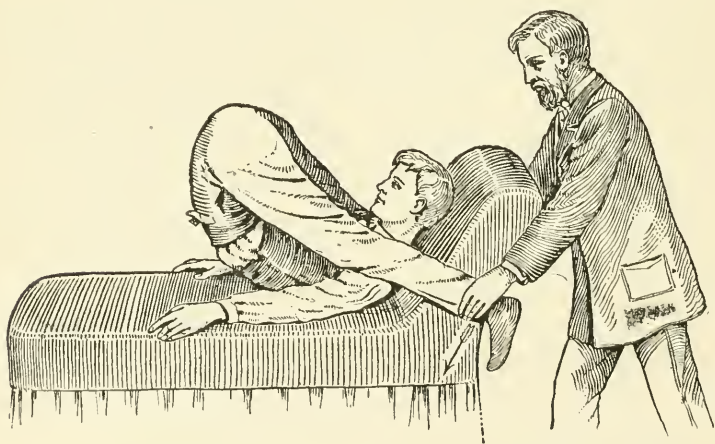
other "therapeutic wonder," as it is termed by Leyden, viz., the statement of Const. Paul, of Paris, that he has extracted from the gray matter of the brain of sheep a substance which, subcutaneously injected, has, it is stated, brought about good results in the treatment of neurasthenic and tabetic patients. Harrison Mettler, of Chicago, ¹²¹_{Feb.} warns against the careless use of strychnine in diseases of the spinal cord, most particularly when an inflammatory process in the cord, or in the meninges, is present. It may be administered as a general tonic in small doses, and its use is furthermore indicated in all anæmic conditions of the spinal cord. Strychnine appears to be most efficacious in progressive muscular atrophy; the subcutaneous injection of the nitrate is particularly recommended.

Communications concerning the results obtained by the suspension treatment have not been very numerous during the year. Bogroff, of Paris, ⁴⁵²_{Nov., '91, Jan.} in discussing the mechanical results of suspension, states that perceptible hyperæmia of the nerve-centres, and particularly of the gray substance, is induced; and he is of the opinion that this augmented flow of blood infuses new strength into the anæmic and weakened nerve-centres. Sleep, the general health, and the spinal symptoms improve upon suspension, while the cerebral symptoms disappear much less easily. Bonjour, of Zurich, ¹⁹⁷_{June 20} gives the results in eighteen cases treated by suspension, thirteen being cases of tabes dorsalis. Of these, three walked much better; the knee-jerk re-appeared in one and the pains were improved in four; one showed marked gain at first, but soon had exacerbation. Robertson's symptoms and the vesical symptoms were not improved, and they all progressed steadily; the general condition of the patients was also improved. At the commencement of the treatment, the *séances* should not exceed half a minute, increasing till three minutes are reached, beyond which they should not be carried. Duncan, ²¹³_{Nov., '91} also obtained considerable improvement, in a somewhat doubtful case of tabes by suspension; after the cessation of the treatment still further progress was made. More or less important modifications of the suspension method have been proposed. The method advocated by H. Gray, of Roanoke, Va., ¹²¹_{Feb.} is certainly not very inviting; he advises the suspension of the patient by the feet, with the head downward. The method of Bonuzzi, which Benedikt, of Vienna, ¹¹³_{Jan. 3}

warmly advocates, is worthy of more consideration. Leyden, not unjustly, considers even mild suspension as a too energetic measure. In Bonuzzi's method the spinal cord is stretched three times as much as in suspension; while it presents a further advantage over the latter, inasmuch as no apparatus is required. The patient lies upon the back, the head maintained in an elevated position by means of a bolster; the lower extremities are flexed upon the body, forming a semicircle, the knees being placed upon the chest of the patient and the legs held straight; the operator, seizing the diverging ankles, carries them strongly toward the floor. Benedikt has, in a number of severe cases of tabes, achieved apparently astonishing results. Patients who were quite powerless to walk or to stand, were enabled to take long promenades with and sometimes without a cane. The beneficial effect in the neuralgic attacks was much more constant and intense than when suspension was used. Naturally there are also some cases in which this method is of no avail, and, at all events, great care is advisable, for this method gives rise to backaches and swellings of the posterior portions of the thighs. (See cut on page 38.)

Th. Kölliker, of Leipzig,²¹²⁸ treats in general of the progress made in the surgery of the spinal cord, and advises that, in all cases in which operative measures would seem to be indicated, they should be resorted to at once. A very interesting description of eight new cases in which operations upon the spinal cord were undertaken has been given by A. Church and W. Eisendrath, of Chicago.^{5 Apr.} In all these cases there were fractures of the vertebral column, with the exception of one, in which there was a sarcoma of the spinal cord. Six cases ended in death, although not always as a direct result of the operation; in one case, through compression of the cauda equina, slight amelioration occurred, while in another an almost complete cure was induced. This last case was that of a male patient, aged 31, who was suffering from fracture and dislocation of the tenth dorsal vertebra, with severe extra-dural hæmorrhage into the vertebral canal. Operative measures were undertaken to place the vertebra in position, and for the removal of bone-splinters and of blood-clots, with, as has already been mentioned, most satisfactory results. After the injury there had been complete paralysis below the umbilicus (including the bladder and rectum), with hyperæsthesia of the paralyzed portions of the

body; but, forty hours after the operation, the first voluntary movements of the formerly paralyzed muscles (*glutei*) could already be observed, and, later, after five days, motion of the toes returned; seven weeks after the accident he was first able to leave his bed, and, very soon after that, could walk around with but little difficulty. Writers call attention to the fact that in all similar cases the disturbance of sensibility offers the surest indication for the localization of the injury to the spinal cord,—that is to say, according to the upper boundary of this disturbance. It is also noticeable that this boundary, in the region of the upper thorax, does not generally correspond to the course of the ribs, but takes a more transverse direction. A number of other observations concerning surgical operations on the spinal cord have already been mentioned, under “Tumors,” pages 1 and 2; while the subject is treated at length in vol. iii, Section A, of this issue of the *ANNUAL*.



BONUZZI'S METHOD OF PERFORMING EXTENSION.
(*Wiener medizinische Presse.*)

PERIPHERAL NERVOUS DISEASES, MUSCULAR DYSTROPHIES, AND GENERAL NEUROSES.

By A. BOURNEVILLE, M.D.,

AND

PAUL SOLLIER, M.D.,

PARIS.

CEPHALALGIA.

Jules Simon, of Paris, ²¹²_{Nov. 10, '91} distinguishes, from the cephalalgia described under the name of the headaches of growth, a certain number of cases which have no connection with organic evolution, such as those of dyspeptic origin, appearing after meals; those connected with neuropathic conditions, such as hysteria, epilepsy, and chorea. In these latter cases the isolation of the child from its habitual surroundings is the best treatment. He also notes rheumatic headaches and those caused by intoxication.

Navarre, of Lyons, ²¹¹_{Mar. 6} observed a case of hemicrania for eleven years, in which the attacks were accompanied by anuria, and supervened exactly fifteen hours after every error in regimen; the author attributes them to an alimentary auto-intoxication.

Edsall, of Pittsburgh, ¹⁹_{May 7} notes the frequency of reflex cephalalgia of ocular origin, and the necessity of examining the eyes in order to overcome the defects which may be the cause of the migraine. Dana ¹⁹_{July 23} insists upon the same measure. Féré, of Paris, ⁹²_{Feb.} points out the existence of an epileptic hemicrania, consisting of intermittent attacks of pain, followed by stupor. This condition, and the paralytic accidents which accompany it, can be cured without leaving any traces. The gravity of the attacks of migraine, in point of duration, appears to depend on the anatomical state of the vessels. The necessity for treatment of the migraine (with sensorial and motor paralyses) is so much the more pressing according as the subject is the more advanced in age, or as he presents vascular lesions. Moir, of Calcutta, ¹⁰⁵⁵_{June} reports a case of migraine in which the moon appeared to have had some influence

on the appearance of the attacks ; an opinion shared by certain other authors whom he quotes.

Lange ⁶⁷³_{Mar.} calls attention to the frequency of the alternation of attacks of migraine with other neuralgias. Delafield, of New York, ¹⁹⁶_{May} reports a case of chronic cephalalgia. In these cases there are always constipation, nausea, vomiting, and jaundice. The pathogeny is at present unknown. Brummell Jones, of Kansas, ²⁷⁹_{July} discusses the semeiology of headache and the utility of recognizing the different forms from a diagnostic stand-point. Numerous remedies have been recommended for cephalalgia. Hammond ¹⁹_{Sept.3} extols phenacetin in large doses, arsenic, and the bromides. Hammond ²⁴²_{Apr.} administers antipyrin. Collins, ⁵⁹_{Apr.2} adopting the classification of Dana, with some modifications, regards the salicylates and chloride of ammonia as the principal therapeutic agents in toxic cases ; he advises ergot in cases of congestion, and also galvanism of the cervical sympathetic ; bicarbonate of soda when there is hyperacidity of the stomach. Symons Eccles, of London, ¹⁵_{Sept.} praises massage in headaches of gastric bilious origin. Weiss ⁸_{No.8} employs compression of the abdominal aorta, but the headache frequently returns upon cessation of the compression, accompanied by hyperæsthesia and photophobia.

NEURALGIA.

Moritz Benedikt, of Vienna, ³⁹⁷_{No.7} ; ⁴⁴⁸_{No.7} divides neuralgia into two classes, peripheral and central, and occupies himself especially with their treatment. In peripheral neuralgia he recommends the use of iodine, subcutaneous injections of carbolic acid, and salicylic preparations. Antipyrin may calm, but not cure. Narcotics should be avoided. The best treatment is electricity and cauterization. Neuralgias should be treated rapidly and palliative treatment not employed, otherwise they quickly become incurable. These two methods of treatment should be applied to all the painful parts, and even beyond them. As for neuralgias of central origin (ataxic pains and *tic douloureux*), they are habitually unilateral in the beginning, but often extend to the opposite side, and may also be accompanied by peripheral neuralgia. Galvanism seldom yields good results. The *loco-dolenti* faradization is an excellent calmative, but nothing more. The application of the cautery is preferable. For migraine, the author recommends fara-

dization of the cranium by means of the faradic coil and electrostatic douche.

Féré, of Paris, ⁹²_{July} reports a case showing well the analogy between epilepsy and certain varieties of tic douloureux. He remarks that in the relationship of this form of neuralgia to epilepsy the three conditions of heredity, intellectual obfuscation after the paroxysms, and coincidence of these diseases have been stated to be absent. He records the case of a man, aged 42, in whom these conditions were present, and in whom both affections were cured by bromide of potassium. The patient's mother had suffered from epilepsy. He himself was the only survivor of four children, the others dying in infancy from meningitis. When about 30 years old he began to suffer from facial neuralgia. The paroxysms consisted of rapid, successive attacks of pain, and a number of erythematous patches were seen on the affected side of the face. At first the paroxysms came on every fortnight, but four years later they became very frequent, as many as twenty occurring in the day. They were accompanied by spasmodic movements of some of the facial muscles. H. Sewill ²²_{Mar.16} insists on the frequent difficulty of making a diagnostic distinction between facial neuralgia and odontalgia, and on the necessity, in all cases of facial neuralgia, of carefully examining the teeth.

Treatment is the object of constant research, and new medicines are tried on all hands, with varying success. Carter ¹⁸⁷_{Jan.} describes a case of intense facial neuralgia cured by an injection of 5 minims (0.32 gramme) of a 1-per-cent. solution of osmic acid. Malherbe, of Nantes, ¹²⁷_{Nov.12,'91} on his side, recommends subcutaneous injections of cocaine in cases of facial neuralgia, where all other remedies have failed, and quotes two cases in support of his advice. He injects, twice a week into the cheek, half a syringe-ful, containing 0.025 gramme ($\frac{2}{5}$ grain) of hydrochlorate of cocaine in 5-per-cent. solution. Kelly ⁸²_{Mar.26} has successfully employed a mixture of 5 grains (0.32 gramme) of siluria, with 2 grains (0.13 gramme) of quinine, repeating the dose six times during the day. Siluria is a combination of the pine-tar preparations with camphor. Fowler's solution has been equally efficacious in the hands of Tarbitzky. ⁸²_{Apr.9}

Alex. Harkin ⁶⁷_{Dec.30,'91} having remarked, in cases of nervous disorder in women, the co-existence of a pronounced sensibility of the spinal column on pressure, or on the percussion of the fourth

or fifth dorsal vertebra, has based on this fact a treatment which consists in placing a blister on this part of the body. He reports a number of cases of trigeminal neuralgia, facial paralysis, and intractable dysmenorrhœa in which this treatment was successfully applied. Our corresponding editor, J. Levison, of Copenhagen, states that Lange⁶⁷³_{May} has, in private practice, observed eleven cases of occipital neuralgia, caused by diabetes mellitus or glycosuria. By an antidiabetic diet the neuralgia, in all cases, was cured within a few days.

Artiers²⁰⁰⁷₉₁ has sought to determine certain points in the diagnosis of hysterical neuralgias. They may appear spontaneously, and at times re-appear only to be replaced by other symptoms. Hysterogenic zones are found, either on a level with or in the vicinity of the painful nerves. These zones become the foci of neuralgias, which, sometimes followed by convulsions, represent a prolonged painful aura, and sometimes not followed by convulsions, when, in the latter case, they represent in themselves a complete hysterical paroxysm.

Sciatica has been the subject of numerous articles. Saunders⁵⁵⁷_{Jan} dwells upon the anæsthesia, the muscular weakness, and the varices which are often combined with sciatica. He has obtained more relief, during the acute stage, by hot flaxseed poultices to the affected area than by any other method of counter-irritation. During the chronic stage the best method is the following: "Place the patient on the back in the recumbent posture; over the region of the celiac axis place a large flat electrode (positive pole); then pass the negative electrode down the course of the nerve as far as the knee. Each sitting should last about ten minutes. Use about 10 milliampères of a galvanic current, the amount depending on the tolerance of the patient."

James Tuttle¹_{July 23} reports a case of obscure sciatic neuralgia, due to osteosarcoma of the ilium. The frequency of obscure sciaticas, and the fact that they are often due to neoplasms of the pelvis, make the case of more than usual interest. Achard and Toupault, of Paris,¹⁰⁰_{July 21} describe three cases of sciatica in hysterical men, and conclude that not only may sciatica be associated with the stigmata of hysteria, but that, in certain cases, it is an hysterical symptom. In these cases the sciatica was located on the same side as the hemianæsthesia, which demonstrates clearly that

anæsthesia of the skin is independent of that of the nervous trunks. In certain cases sciatica may succeed an attack, and, perhaps, even substitute other hysterical manifestations.

Raven,²_{Mar.19} in about one-third of the cases of sciatica which he has seen during the past eight years, has found loss of the knee-jerk on the affected side. For the most part, the cases in which he has observed this have been of exceptional severity; but he has also witnessed really sharp attacks when the reflex was not altered. This fact should serve as a good criterion in the prognosis.

Debove and Rémond, of Paris,⁴²⁰_{Oct.} call attention to the frequency of polyuria in cases of sciatica. They believe this phenomenon to be attributable to an increase in arterial tension, consecutive to morbid excitation of the sciatic nerve. Huchard, of Paris,⁴²⁰_{Feb.} having studied the subject, announces that, of ten such patients kept under observation, in the majority the quantity of urine excreted was rather diminished than increased. In three instances of polyuria this was proved to be due to generalized arterio-sclerosis, or to commencing renal sclerosis. Huchard appears to agree that moderate or strong stimuli brought to bear on the sciatic nerve diminish, or even totally arrest, the secretion of urine, while slight stimuli have the opposite effect of increasing such secretion.

Quénu,³¹_{May 12} expressed the opinion that certain cases of sciatica are due to varicose veins. He looks on the operation of stretching the nerve as a brutal procedure, giving by no means brilliant results. Veil, of Paris,¹⁵²_{Apr.16} quotes a case of sciatic neuritis, lasting three years and resisting every treatment, which was cured by wearing an elastic stocking, covering the limb as far as the trunk. Detlefsen, of Chicago,¹⁸⁶_{Jan.19} extols massage for sciatica, and thinks the most essential point in the massage treatment of ischias seems to be the stretching of the nerve,—contrary to Quénu's opinion.

Grover Burnett,¹⁰⁶_{Feb.} passing in review the various proposed treatments, concludes that the most scientific method is (1) absolute rest; (2) the application of moderate, continuous cold; (3) the proper application of the continuous galvanic current; (4) morphia hypodermatically to relieve pain. Symons Eccles²_{Apr.9} recommends rest combined with massage. J. French,⁵³_{June 11} of Cincinnati, extols continuous application of heat by means of hot-water

bags, while Gundrum⁸⁰_{Feb.} prescribes local bleeding. Chindamo³⁵_{Dec., '91} obtained good results from ether injections applied on the level of Valleix's points.

Laidlaw¹⁸⁶_{July} notes pains of reflex origin, beginning in the rectum or in the bladder and resembling sciatica; hence the necessity of examining these two organs when the cause is obscure.

W. Winternitz, of Vienna,⁵⁷_{Feb. 7} in twenty-five years, has treated five hundred and eighty-five patients attacked by essential neuralgia, and has obtained 52 per cent. of cures, 43 per cent. of ameliorations, and 5 per cent. of failures, by means of hydrotherapy (wet compresses, vapor baths, vapor douches, cold affusions, wet cloths, rain-water, etc.). H. Kisch¹⁶⁹_{p. 337} prescribes the systematic use of purgatives in the treatment of neuralgia, when attention is directed to an etiological relation with stomach and intestinal troubles, particularly with constipation. Gibson and Berry Owen, of Bolivar, have obtained brilliant results with phenacetin and salol. Westwood Wilson²²⁹_{Feb.} gives aconitine, hydrobromate of quinine, then ferrocyanate of quinine. In one case of stubborn and prolonged intercostal neuralgia, Kenny⁸²_{Aug. 13} obtained a cure by making section of the nerve between the fifth and sixth intercostal space, near the vertebral column.

Frenkel⁶¹³_{Oct. 31, '91} has published an interesting memoir on the advantages of hypnol in the treatment of neuralgic insomnia. He regards it as superior to chloral, as it acts in doses of a third or half less than the latter, and believes that it would also be of use in insomnia caused by any pain.

THOMSEN'S DISEASE.

Delprat⁶⁹_{Feb. 25} has recorded two interesting cases of Thomsen's disease, or myotonia congenita, in two brothers of a family in many members of which abnormal muscular contraction seemed to be a common feature. One of the patients was 19 and the other 14 years old. In both, attempts at muscular movement were attended with stiffness and spasm, which gradually grew less and disappeared as the movement was accomplished and repeated. Muscular development was excessive. There was some shortening of the flexor muscles of the hand, so that perfect extension was impossible. Muscular mechanical irritability was but little increased; irritation, however, was followed by contraction that

persisted for some time. The small muscles of the hand contracted *in toto*; the long muscles presented elevation and depression at the site of percussion, which gradually disappeared. The knee-jerks were preserved; ankle-clonus was wanting. There was no ataxia. Fibrillary contractions were not observed. Sensation and the action of the sphincters were normal. Tetanic contraction of the muscles was readily induced. In the first case rhythmical wavy contractions, passing from the cathode to the anode, followed voltaic stimulation of some of the muscles. Apropos of this article, Guttman⁶⁹_{Mar.24} remarks that priority in the discovery of Thomsen's disease belongs to Leyden, whose observation was published in 1866, while Thomsen's first work was not published until 1876.

Gowers⁶⁸_{Feb.} has reported a curious case of ataxic paramyotonus in a man of 41 years of age, who had suffered from syphilis eleven years previously. The symptoms showed themselves at first in the lower extremities in the form of tonic spasm, which rendered the voluntary movements slow and difficult. Afterward the arms were attacked. The flexors and the extensors were equally affected with muscular weakness. Besides this, there was a certain degree of inco-ordination of the hands, which made them awkward. The man had lost muscular sensation, also that of motion and position of the members and of weight. The reflexes could not be induced. There was no trouble with the sphincters, and sensibility was diminished. The chief difference between this case and Thomsen's disease is, that in the former the spasm was permanent and not transitory. It is evident that the spinal cord was diseased, perhaps also the peripheral nerves and the muscles.

Kimura, of Tokio,⁶⁷³_{Sept.} reports a case of Thomsen's disease, which is extremely rare among the Japanese, this, in fact, being the first reported in the empire. Angell, of Rochester,²⁴²_{Dec.,91} quotes another, with compared electric examination of the muscles. Dana²⁴²_{Feb.} presented a typical example to the Neurological Society of New York, as did also Paul Seifert.³²⁶ Huet, of Paris,⁴⁵²_{Feb.} has studied the myotonic reaction in Thomsen's disease, with special reference to the electric excitability of the muscles. He examined first the modifications in faradic excitability of the muscles; then, of the galvanic, and, finally, of the mechanical excitability, and of the mechanical faradic and galvanic excitability of the motor nerves. Numerous tracings taken from a patient, the observation of whose

case served as the basis of a long memoir, are brought forward in support of his conclusions. Myotonic reaction, already well-described by Erb, offers distinctive characteristics which differentiate it clearly from the reaction of degeneration and from other already-known modifications of the mechanical, faradic, and galvanic excitability of the motor nerves and muscles. These modifications in myotonic reaction act almost exclusively on the excitability of the muscles; while, in fact, the excitability of the nerves remains nearly normal, that of the muscles is found much modified both in quantitative and qualitative relation. Quantitatively it is increased, qualitatively it is altered, in all similar modes of excitation. According to the author, this change consists in slowness, inactivity, tonicity, and especially the persistence of provoked contractions. These characteristics are at the minimum at the beginning of the examination. Violent or prolonged excitations cause the appearance of undulatory movements, the more easily according as the muscular alterations are the more marked. The author, having examined and compared a large number of other affections in which the muscles were affected either primarily or secondarily, has never met with myotonic reaction, which thus remains a pathognomonic feature of Thomsen's disease.

TONIC AND CLONIC SPASMS.

Chas. Burr²⁴²_{May} describes four cases of choreic fits, caused by voluntary motor acts. In the first case, cerebral-choreic or spinal-choreic spasms were present; in the second, hysterical fits; in the third, sclerous alteration of the spinal cord; in the fourth, the attacks were of spinal origin. The author classifies functional spasm under three heads: (1) where a voluntary motion is liable to abnormal exaggeration; (2) where a normal functional act (muscular) results in a limited spasmodic action of remote muscles not engaged in the original movement; (3) where standing or walking gives rise to a general disorder of movement.

Trigger Finger.—Nimier, of Val de Grâce,²⁴³_{Jan.} in a general review of this ailment, concludes that many different conditions have been included under this denomination which present simply the clinical analogy that the movements of the fingers (flexion or extension) suddenly stop and as suddenly recommence, this being preceded by a more or less marked jerk.

Pulmar Retraction.—Steele Bailey²²⁴_{Aug. 27} quotes a case of palmar retraction, apparently due to syphilis, which would constitute a new etiological factor in this affection.

Tics.—Brunon, of Rouen,²⁰³_{Apr. 1} reports five cases of tic under different headings, two of which, occurring in individuals of hereditary degeneration, were cured by hypnotic suggestion. Dunn, of Richmond,⁸¹_{Feb.} quotes a case of tic douloureux of the face, lasting fifteen years, and treated unsuccessfully with all known medications, which was caused by a nasal reflex. It yielded to cocaine, and to treatment of hypertrophy of the lower turbinated body. He thinks that a large number of tics douloureux are of reflex origin, and that, in order to treat them, a careful examination should be made of the eyes, nose, and ears. Benedikt⁸⁶⁶_{June} believes this trouble to be mainly of central origin, although peripheral influences may cause exacerbation. Various vasomotor phenomena in the small vessels, as well as in the carotid, are often found associated with it. Central galvanization, especially of the sympathetic, is the remedy which should be used first; faradization, local galvanization, and static electricity may also be tried. Digital compression of the carotid is often of great value.

Graeme Hammond⁸⁶⁶_{June} states that lesions of certain parts of the motor tract are invariably followed by spastic spasm, and never by mobile spasm. In the treatment of this trouble he has secured the best results from the internal administration of conium and atropine, their efficacy being greatly enhanced by combining them with moderate quantities of the bromides.

Kahler⁶⁸⁵_{Mar.} reports a case of generalized convulsive tic, occurring, after violent emotion, in a young man who presented no other hysterical stigmata. Booth¹_{Feb. 6} speaks of a case of spasmodic screaming in a man who had had an attack of left hemiplegia, which had gradually improved, and who complained of intense and constant pain in the head. The author believes the case to have been one of simulation.

PARAMYOCLONUS MULTIPLEX.

Salvator Bacci⁴⁷²_{Jan.} describes a typical case of paramyoclonus multiplex. The treatment at first was by galvanism, so highly lauded in these affections. The writer was obliged to abandon it, because twice after the use of a weak current the muscular spasms of the lower extremities increased in intensity. The administra-

tion of alcohol gave excellent results for the time being. For the next ten days antipyrin was given in 2-grain (0.13 gramme) doses daily; then, little by little, the dose was diminished, until the twentieth day, when it was suspended altogether. An arsenic treatment was then undertaken (preparation and dose not stated), with the most gratifying results. In a short time the patient returned to his work completely cured.

ATHETOSIS.

Roberto Massalongo, of Padua, ⁵⁸⁹_{Sept. 3} reports a case of hemiathetosis in a young child, following measles. This fact supports the opinion of the same author given in 1887, that the disease originates in children in infectious diseases, either unknown or well known, such as the eruptive fevers of infancy. Domenico Cappozzi ⁵⁸⁹_{Aug. 25} publishes two interesting lessons on athetosis, without throwing any new light on the question. Fornario Guiseppe ⁸³⁴_{Jan.} has studied muscular shocks and the faradic electric reactions in a patient attacked with complete left hemiathetosis, the face being included. The muscular tonus was exaggerated by the galvanic current. The form of athetotic contraction greatly resembles that of contracture, whence its greater importance than in choreiform movements. There is inequality in the muscular tonus shown by faradic reaction, which arises, doubtless, from the irregular spontaneous contractions of the muscles. Archibald Church, of Chicago, ⁸⁶⁶_{Mar.} reports three cases, with interesting photographs, of hemiathetosis in a young child, and of double athetosis in a woman and a young boy, valuable from a clinical point of view. Hugh Hagan, of Atlanta, ¹_{Jan. 16} furnishes an observation, also with photographs, of generalized athetosis in a child of 4 years, the cause of which appeared to be a cerebellar tumor. J. Wright Putnam, of Buffalo, ²⁴²_{Feb.} quotes a case, in a young girl of 12 years, dating from birth, an autopsy being made; this being the fourteenth case of double athetosis with autopsy. An absence of the corpus callosum and of the floor of the third ventricle was observed. The left temporal lobe was retracted, and the lenticular nucleus softened and completely bare. At the extremity of the lobe there was an old abscess, capacity about 1 ounce (30 grammes). In the right temporal lobe there was also a small cavity, the seat of a former abscess. The results of this autopsy compel the author to believe

that athetosis is a pathological entity, by reason of the lesion of the lenticular nucleus met with in the majority of cases.

Alex. Koranyi²⁴²_{Sept.} reports a case of spastic hemiathetosis in a man, 20 years of age, who, in his fourth year, had had a sudden attack of right hemiplegia. There were athetoid movements in the upper and lower extremities on the right side; corresponding reflexes increased. Pressure along the nerve-trunks of the right extremities brought on a permanent contraction, which lasted as long as the pressure was kept up, resembling very much a cataleptic condition. D. Ivan Michailowski⁴⁵²_{Mar., Apr.} has made a study of double athetosis from a clinical point of view, and adds a new case of his own. The largest work on the subject is that of Audry, of Lyons,²¹⁵⁴ on double athetosis and chronic choreas of childhood. The author distinguishes double athetosis of cerebral origin from that of extra-cerebral origin. This latter, met with in ataxia, infantile paralysis, peripheral neuritis, and even hysteria, cannot in any way be identified with ordinary double athetosis. The conclusion of the author, that athetosis cannot often be differentiated from chronic choreas, especially infantile and congenital choreas, shows clearly the author's confused knowledge of the subject. His work, which contains all the cases published up to date, is lacking in exact scientific value, and is also somewhat obscure, since the pathological anatomy of the subject is scarcely touched upon.

Parsons Norbury, of Jacksonville,³⁶⁴_{Apr.15} reports a case of bilateral athetosis in a man of 43 years, formerly insane and addicted to alcohol, in whom the disease developed gradually, beginning at the extremities, and later on involving the neck, the face, and finally accompanied by complete aphasia. The entire cerebro-spinal axis appears to have been affected. This case is interesting, as it shows that double athetosis is not always accompanied by imbecility, and does not always date from early infancy.

TREMORS.

De Renzi⁵⁹⁶_{Jan.} regards tremor as a cerebral phenomenon, due to a non-destructive lesion of the psycho-motor substance or of the pyramid. It develops, when bilateral, on one side more than on the other, or it is more pronounced on both sides and variable. In general the tremor is predominant on the left. Electricity

applied to the cranium increases it, more by the cathode than by the anode. This increase is more marked when electricity is applied to the Rolandic zone. The application of ice on the same zone diminishes the tremor. Efforts made to raise a weight increases it; a psychic effort produces the same effect. Arsenic is the drug which appears most efficacious. Iodine has caused saturnine tremor to cease, as well as that of insular sclerosis.

Rhein¹¹²_{Mar.} presents five cases of different tremors in general paralysis, lateral amyotrophic sclerosis, convulsive tic, and Graves's disease.

Charcot⁸²⁷_{June} does not believe that there is a mercurial tremor, supporting his statement by the following facts: In acute intoxication or in subchronic mercurial intoxication, the existence of a tremor has never been proven. Men may remain for years in the workshops without a case of tremor occurring, but when one does occur a real epidemic sets in. In five cases examined by Letulle, three presented hysterical symptoms. To Charcot mercurial tremor is an hysterical tremor, which may exist alone without other concomitant symptoms. Mercury would then develop a toxic hysteria like that produced by alcohol, sulphide of carbon, syphilis, etc.

Raymond, of Paris,¹⁴_{Mar.2} discusses hereditary essential tremor, considering it a singular form rarely seen, and probably as incurable as paralysis agitans, which it so much resembles. It differs from the above form of palsy in being an affection of the muscles only, and would seem to be hereditary. It resembles the trembling seen occasionally in old age, but may appear before middle life, and increases with advancing years. One of its peculiarities is that alcoholism tends to temporarily abolish it, but any strain upon the muscles, such as lifting a heavy weight, makes it worse. Potts⁸⁰_{June 15} praises the virtues of sulphate of sparteine in essential tremor, beginning with $\frac{1}{4}$ grain up to $\frac{1}{2}$ grain (0.016 to 0.032 gramme), and quotes two cases in which this treatment was beneficial. J. H. Lloyd, of Philadelphia,¹_{Aug.6} brings forward a case of hysterical palsy associated with nervous anorexia.

PARALYSIS AGITANS.

Bustamante⁵⁵³_{June 18} gives a general review of our knowledge of paralysis agitans. Rosenberg¹³⁶_{Aug.15} observed disturbance of the voice

and of speech in a patient suffering from paralysis agitans. The vocal cords participated in the movements, notably during respiration. Troubles of speech arise principally in the movements of the musculature of the articulatory apparatus, especially the lips. Leva²²⁰_{July 15} has studied the composition of the urine in Parkinson's disease (paralysis agitans), and finds that it presents nothing abnormal.

Béchet⁴⁵²_{July} reports a number of cases of unusual attitudes in this affection, as the throwing back of the body, extension of the arms (type of Charcot's extension), an attitude simulating torticollis; in a third the stiffness was limited to the right side, more especially to the upper member, and might cause one to suspect an hysterical origin. Huxtable, of Sydney,²⁶⁷_{May} reports a case in which the tremor showed itself by voluntary movements, as in insular sclerosis. Quintard²¹²_{Mar. 10} quotes a case, in an insane girl aged 16 years, which appears to have been simply hysterical tremor.

Koller,¹²⁶_{July 15} studying the pathological anatomy of paralysis agitans, regards it as a perivascular sclerosis of the white substance of the marrow. The longitudinal striæ of the corpus callosum first involved are the posterior, then the lateral. Borgherini⁵⁹¹ has also found alterations of the vascular system. The lesions were especially marked in the pons Varolii, or there were aneurismal dilatations of the small and the medium vessels, and at the same time the nerve-cells were much pigmented and altered in shape. On the floor of the fourth ventricle there was true atrophy of the gray substance. In the rest of the cord the vessels were dilated and thickened. The vasomotor alterations were considered by the author as primitive and as explaining the predominance of vasomotor phenomena during life.

Placzer⁶⁸_{Feb.} observed a case of paralysis agitans combined with sclerosis of the posterior columns, but post-mortem verification was not made. Eulenberg⁸⁶⁶_{June} tried atropine, as advised by Morelli, in the treatment of paralysis agitans, but obtained no good result from it.

Morton Prince⁹⁹_{Apr. 7} studied the tremor of paralysis agitans apropos of a case in which that form of tremor showed itself after an attack of hemiplegia, and was probably due, as is usual in such conditions, to a lesion of the gray nucleus rather than to a cortical lesion, although the latter form may also occur.

RAYNAUD'S DISEASE.

Wardrop Griffith, of Leeds, ⁹⁰_{Nov., 91} insists on the affinity of Raynaud's disease with scleroderma, as already pointed out by Bell, Vidal, Favier, Barlow, and others. He brings three new cases in support of this analogy between the two affections, cases in which local asphyxia clearly preceded scleroderma. Glasgow Patteson, ¹⁶_{Jan.} apropos of a case exhaustively reported, examines the various pathological theories, and supports the theory of Raynaud, viz., that of arterial spasm.

Rosenbaum ²²_{June 22} quotes the case of an hysterical man affected with Raynaud's disease, showing itself in spasms, without gangrene, coming on suddenly and accompanied by swelling of both hands. This, no doubt, was a case of blue hysterical œdema, as described by Charcot. Talbot Jones ¹⁰⁵_{Jan. 15} publishes a detailed case of Raynaud's disease, and gives the clinical history of the affection without adding anything new. Dehio ²¹_{Mar. 7} reports a case of symmetrical gangrene, occurring in a woman after fear,—most probably a vasomotor trouble of central medullary origin.

Elsenberg ⁴⁵ reports a fatal case of Raynaud's disease of syphilitic origin, occurring in a young woman 22 years of age. The autopsy disclosed gummata in the liver, and a marked degree of thickening of the walls of the small arteries, in the neighborhood of the gangrenous ulcers. In many of the altered vessels complete obstruction was caused by coagula, composed of colorless blood-corpuscles in process of fatty degeneration and desquamated endothelial cells. The author concludes that our conception of the pathology of the disease must be enlarged so as to include not only those cases dependent upon reflex spasm of the vessels, but those, also, which depend upon trophic disturbances brought about by inflammation of the peripheral nerves after injury, infectious diseases, intoxications, and affections of the nervous centres. Marsh ²_{May 21} has observed a case of symmetrical gangrene of both feet, in a boy of 12, hereditarily syphilitic, who was cured with loss of the ulcerated toes. Matas ¹²_{Mar.} describes a case of non-traumatic dactylitis, with necrosis of the terminal phalanx of the left medius, associated with anæsthesia and athetosis of the corresponding hand and other local nervous disturbances. He asks: "Is it a case of Morvan's disease, a precocious tabetic osseous lesion, a peripheral neuritis, or local asphyxia of extremities?" McCall Anderson ²¹³_{Aug.} reports a

similar case of disturbance of circulation of the left arm, the symptoms resembling those of the early stage of Raynaud's disease, without final diagnosis. Hutchinson⁸⁰⁶_{Apr.} relates a very remarkable case, illustrating the connection between the liability to "dead fingers" and the occurrence of symmetrical gangrene of their ends, in a lady 64 years old.

In reference to treatment, Haig²_{Dec. 12, '91} has successfully given salicylate of soda, alternately with the acetate, in a case of Raynaud's disease with hæmoglobinuria, in a girl aged 6 years. Brabson Cates¹¹²_{Feb.} recommends the injection of nitro-glycerin, beginning with $\frac{1}{1000}$ grain (0.00065 gramme), and increasing gradually up to $\frac{1}{50}$ grain (0.0013 gramme) three times a day. This was very successful in one case. Peter, of Paris,¹⁰⁸⁵_{Feb. 20} relates two cases in which he successfully employed electricity in the following manner: The positive pole of the galvanic battery was placed on the vertebral column, on a level with the cervical enlargement, the negative pole being plunged into a basin of warm salt water. Each of the four extremities were bathed successively for five minutes in the water, which thus acted as the negative pole. The number of elements employed was gradually increased from 4 to 8, 10, and 16 for each member, and the intensity of the current from 1 to 2 and 3 milliampères for the maximum.

ERYTHROMELALGIA.

Charles²⁹⁰_{May 3} observed a typical case of this rare affection, and Gerhardt²²_{Aug. 17} describes another equally clear case. In neither case was it possible to indicate the precise etiology, and no information could be furnished as to its anatomical nature, which, at present, is considered as due to vasomotor paralysis.

NEURITIS.

Arthaud and Rescoussié, of Paris,⁶²_{May} in an important thesis on neuroses and neuritis of the vagus nerve, containing seventeen original observations, seek to discover the pathogeny of certain morbid, badly-defined states, which caused the patients to be considered as suffering from cardiac, asthmatic, emphysematous, dyspeptic, or diabetic disease, when, in reality, it was a pathological state with proteiform manifestations, the origin of which is variable, according to the case. In the beginning, the organs affected are

free from organic lesions. The symptoms (paralysis of the larynx, fits of coughing, pseudo-asthma, oppression, acceleration or retardation of the pulse, spasms of the pharynx and of the œsophagus, modifications of the urinary secretion, etc.) arise sometimes from compression of the vagus trunk; sometimes from secondary or metastatic inflammation, occasionally primary, in the sheath of this nerve; or sometimes from neuro-arthritis. The patients recover, are temporarily improved, or remain stationary. The treatment consists principally of galvanism of the vagus nerve and the administration of opium.

Leopold Hieglitz³⁶⁸ gives the results of his experimental investigation upon lead-poisoning, with special reference to alterations in the nervous system, exposing rabbits and guinea-pigs to the influence of solution of subacetate of lead, in a finely-divided state, from a steam-atomizer. The numerous changes in the spinal cord (inflammatory process in the large cells of the anterior horns of gray matter, atrophic changes in the anterior horns, vacuolation of the ganglion cells, and degeneration of the corresponding roots and peripheral nerves, vacuolation of the multipolar cells, etc.), especially as they occur in all the cases of palsy, point to the spinal cord as the seat of the disease. Dana⁴⁵¹_{June} reported a case of progressive lead palsy following the use of cosmetics.

Thomas, of Pittsburgh,⁶¹_{Feb. 27} relates a case of acute rheumatic neuritis, with fever, which disappeared under the influence of salicylate of soda. On the other hand, McCaskey⁴⁵¹_{Feb.} calls attention to the frequent errors in diagnosis between neuritis and neuralgia or rheumatism, and to the consequent results. In simple cases rest is of the first importance. Opiates are also indicated. For electric treatment, it is better to wait until the acute period is over.

Bruère, of Edinburgh, has made researches upon the causes of local motor paralysis after partial poisoning from charcoal vapor. The method of experiment adopted consisted in causing animals to breathe a mixture of pure carbonic oxide and air, the volume of the former gas being so small as to cause only a very gradual intoxication. The author is inclined to refer the local paralysis to a neuritis of the nerves supplying the paralyzed muscles, and states that most of the cases of local paralysis which follow upon poisoning by carbonic oxide are due not to tonic neuritis, but to neuritis brought on by undue exposure of the poisoned persons to cold.

Nothnagel, of Vienna, ²²_{Sept. 7} reports a case of post-infectious neuritis following diphtheria, in a child of 6, affecting the optic muscles, the soft palate, the larynx, and partially the extremities. He reviews the neuritis following other infectious diseases.

R. Thomsen, ³⁶⁸₉₁ relates three cases presenting symptoms of multiple neuritis, apparently due to the ingestion of alcohol, in which careful examination was made after death. In these three cases the nerve-centres were found not to be involved, even in one case which had been diagnosed as tabes dorsalis, with amblyopia, paralysis of external oculo-motor, abolition of reflexes, nystagmus, etc. Spalink, in experiments on alcoholic neuritis, found a twisted condition of the axis-cylinders, which Thomsen has seen in some experimental cases, and which, it is to be hoped, will be corroborated or denied by other investigators. Rummo ⁸⁴₉₁ examined two cases of this kind. In the first, of long duration, with paralysis of lower extremities, he found that the spinal cord, the roots of the spinal nerve, and the cranial nerves were normal. The tibial nerve showed an advanced parenchymatous neuritis. In the second case, commencing diffuse sclerosis of the white substance of the hemispheres was found, with a large number of miliary apoplexies, a slight increase of neuroglia in the pons. The peripheral nerves showed but few degenerated fibres, but a slight increase of connective tissue, and a very general peri- and end-arteritis.

Kochewnikoff, of Moscow, ⁶⁷³_{Apr.} describes many cases of alcoholic paralysis which seem to be caused principally by a parenchymatous degeneration of the nerves of the extremities, although lesions of the spinal cord are, at times, also present. An impaired intellectual condition usually co-exists with the motor disturbances. Fisher, of New York, ¹_{Feb. 18} studies the mental derangements observed in multiple neuritis, especially that of alcoholic origin. Especially important as a symptom is the loss of knowledge of time and place during the illness. The disturbance of function is most manifest in the upper extremities, and arises from lesions of the association-fibres of the brain. Howell Pershing, of Denver, ⁴⁵¹_{Sept.} also reports a case of alcoholic multiple neuritis, with characteristic mental derangement. The writer believes the neuritic psychosis of great importance, since it has a striking individuality, and so may be used in diagnosis, especially as it is sometimes fully developed when the nerves are but slightly affected, and may even

appear in advance of the neuritis. Glynn¹⁸⁷_{July} published two cases of alcoholic neuritis, with post-mortem examination. One case was remarkable in that the nerves were very generally involved, there being not only partial paralysis of the extremities, but also paralysis of the diaphragm, evidently from neuritis of the phrenic nerves.

Leszynsky²⁴²_{Apr.} reported a well-marked case of multiple neuritis affecting both motor and sensory nerves in a child aged 7 years. Careful inquiry elicited the information that, as the boy had been feeble during the previous two years, the mother had given him two bottles of beer daily, and occasionally some whisky. The boy died within a few weeks. Dubrisay, of Paris,¹⁷_{Nov. 26} publishes a case of alcoholic paralysis in a young dipsomaniac woman, with multiple neuritis, who recovered.

Eskridge¹¹²_{Mar.} reports a case of chronic alcoholic neuritis and a case of pressure neuritis, presenting no features of importance. Gilbert, of Baden-Baden,⁶⁹_{Aug. 25} reports two cases of polyneuritis: one of a rheumatic infectious origin; the other toxic, after poisoning by Schweinfurth's green. Nonne³⁴_{June 21} relates an interesting case of generalized leprosy, in which the nervous system was only attacked secondarily. The nerves presented fusiform thickenings with extreme degeneration,—the true leprosy neuritis, under the form of parenchymatous neuritis and of perineuritis, with the bacilli of leprosy in abundance. There was, nevertheless, no functional modification of these nerves.

Fraenkel, of Berlin,⁶⁹_{Dec. 31, '91} reported three interesting cases of multiple neuritis. A man 40 years of age, an inebriate, presented, concurrently with the ordinary symptoms of neuritis, a well-marked amnesia. Psychical symptoms are very infrequent in multiple neuritis, and should always be referred to a lesion of the cerebrum. The patient, in this case, grew more and more feeble, and succumbed. At the autopsy a deliquescence of the myelin of the peripheral nerves was found; the spinal cord was intact. The second case was that of a young lad, aged 14 years, who, besides paresis of the lower limbs and an ataxic gait, had complete paralysis of the left arm and atrophy of the paralyzed muscles; the case resembled one of progressive muscular atrophy. The third case, a man of 29 years, presented himself with very pronounced symptoms of tuberculous neuritis. He had complete paralysis of the

lower limbs, paresis of the upper limbs, and intense pain. Death ensued. Goldscheider remarks that the participation of the cranial nerves in the lesions of the multiple neuritis is very uncommon.

Charles K. Mills, of Philadelphia,⁴⁵¹_{Feb.} relates a number of interesting cases of multiple neuritis with complications, there being in one case acute rheumatism, in two others sclerosis of the posterior columns, in another grave cerebral troubles.

Eskridge²⁴²_{Feb.} cites a case of subacute multiple recurrent neuritis which was difficult to differentiate from spinal pachymeningitis, acute ascending paralysis, and tabes. This difficulty of diagnosis is again illustrated in a case regarded by Remak as multiple neuritis, which Fraenkel had considered as tabes. The patient recovered, proving Remak to be right. The same occurred in a case of Leszynsky's,²⁴²_{Feb.} where the diagnosis was doubtful, Mary Putnam Jacobi being tempted to call the disease hysteria. While Fraenkel regards the psychic conditions as rare in polynuritis, Korsakow considers them frequent, particularly the troubles of the memory.

LANDRY'S PARALYSIS.

Powell, of Toronto,¹⁰⁷²_{June 2} and McPhedran¹¹²_{July} relate the case of a patient presenting the symptoms of Landry's disease, who recovered. In the absence of disturbances of sensibility and of anomalies of the reflexes and electric reaction, it is doubtful whether there were lesions of the cord. It is more probable, as certain authors have observed, that it was a case of polynuritis. The recovery confirms this opinion. The case reported by Anderson,²⁸⁵_{Mar 15} in which recovery also took place, appears, on the contrary, to be a typical case, as is that published by Miles, of Baltimore.⁹⁹_{June 23}

Daniel Batori, of Budapest,⁴¹_{Mar. 17} observed a typical case of Landry's disease in a young woman of 26, after taking cold. Fever and uncontrollable vomiting were present, and the patient died suffocated. Unfortunately, there was no autopsy. In Greppin's case,²¹⁴_{Aug. 18} a young woman of 29 was affected with melancholia for four months, and death took place from respiratory paralysis. There was no fever, shock, spasms, or atrophy. Nothing was found, either macroscopically or microscopically, in the nerve-centres or in the peripheral nerves. The bacteriological researches were equally fruitless.

BERIBERI.

Duncan Scott, of Edinburgh, ¹⁵_{May} publishes a study on the causes and treatment of beriberi, in which he demonstrates that the disease arises from alteration of the blood-globules, combined with excessive acidity. The symptoms are produced either by acidity or by an alkaloid possessing an action similar to that of muscarin. But it remains to be determined if the alteration of the blood be caused by a micro-organism or by auto-infection.

Leslie ²_{Feb.27} regards beriberi as a peripheral neuritis, independent of the presence of anchylostoma, and thinks that the affection produced by the latter is absolutely distinct from beriberi. Takaki, of Tokio, ²_{Sept.24} has succeeded in controlling a considerable number of cases of beriberi in the Japanese marine, by adopting a food regimen in which rice is for the greater part replaced by beef, pork, eggs, etc. Of 3063 per million in 1883, in 1889 there were only 388. Berry ⁹⁹_{Sept.10} has obtained good results from salicylate of soda, sweet spirits of nitre, acetate of potash, strophanthus, and bromide of soda.

Niña Rodriguez, of Bahia, ²¹⁵⁵ also considers beriberi as a primitive infectious polyneuritis. In the diagnosis, its epidemic character is to be considered one of the most important elements.

Sinclair ⁶_{Dec.25,'91} also believes that beriberi is produced by some micro-organism. In one hundred cases, only once was a kind of filaria found in the blood. Anchylostoma was only met with eight times. Owi ²⁰⁰_{Jan.23} thinks that the disease is due to abnormal fermentation in the intestines under certain circumstances, the ferment being, perhaps, a micro-organism. Ashmead, of New York, ²⁰⁰_{Feb.} makes a general study of kakké. Agapito de Veiga ⁴⁵¹_{Aug.} believes that living in a confined atmosphere and in districts favorable to cryptogamic vegetation has considerable influence in the production of beriberi. Leopold, of Montevideo, ⁴_{Jan.25} also believes that geographical and meteorological conditions have great influence. Musso and Morelli, of Montevideo, have found four micro-organisms in the blood of patients attacked with beriberi: (1) staphylococcus pyogenes albus; (2) a chain-coccus; (3) a small streptococcus; (4) a micrococcus which, inoculated into guinea-pigs and dogs, produced in every case a degenerative neuritis, and which was considered the specific microbe of the disease. Intrameningeal inoculation produced similar results. At the autopsy,

the authors found the polyneuritis described by Baltz and Scheube.

James Walker, of Sandakar, ²_{Dec. 5, '91} reports two cases of beriberi associated with distoma crassum, anchylostoma duodenale, and other parasites. Giles ¹_{Mar. 26} thinks that beriberi and the kala-azar of Assam are identical, and he considers the latter an anchylostomiasis caused by the *Dochmius duodenalis*. Max F. Simon ²_{July 2} is not of this opinion, and believes in an infectious polyneuritis due to an alteration of blood, of which the symptoms are often difficult to distinguish from those of alcoholism and malaria.

MORVAN'S DISEASE.

Sachs and Armstrong ¹_{Apr. 30} report a new case of Morvan's disease. The patient, a man of 28, had had a venereal ulcer with bubo in the right groin. Since then he had been healthy until four years ago, when, while at work as a dishwasher, his hands had lost muscular power; there was twitching of the fingers and thickening of the skin. The skin on the dorsum of the right hand was normal, but that on the dorsum of the fingers was thickened. There was a slight contracture at the second phalangeal joint in all of the fingers, but more marked in the middle and the index. The dorsum of the thumb showed a small eschar, but there was no contracture. There was marked atrophy of the first dorsal interosseous. The skin of the palmar surface of the hand was thickened and showed numerous rugged excoriations of the derma, on which were a few fissures extending through the cutis vera. On the anterior surface of the right forearm was an area of dermatitis resembling ichthyosis. At the bend of the elbow was an area, four inches long by an inch wide, in which were numerous small, depressed, atrophic areas resembling an atrophoderma circumscriptum albiotum. The skin of the dorsum of the left hand was normal, but thickened on the dorsum of the fingers. The muscular sense seemed normal. Tactile and pressure senses were normal. The pain sense was abolished in an area of the dorsum of the right hand, and over the dorsum of the fingers, hand, and ulnar side of the left forearm. There was a sensation of cold to a temperature of 212° F. (100° C.) on each arm. Electrical reactions to the faradic current were absent in the extensor-muscle group, while the flexors responded. There was reaction of degeneration over

the extensor muscles of both arms and in the interossei of both hands.

Pick⁸⁶⁶_{June} reports a case and gives a complete detailed clinical history, the main points of which are: Its very slow progress, lasting over twenty-two years; comparatively painless whitlows, with necrosis, involving fingers and toes; atrophy of the skin on the dorsum of both hands and feet and on the forearms, very symmetrically distributed; a great reduction of temperature in the peripheral parts; an atrophy of the subcutaneous tissues of the face; paræsthesiæ and diminution of sensation; pronounced Westphal's symptom and some ataxia. Pick fully considers the differential diagnosis from lepra anæsthetica, sclerodactylia, and syringomyelia in the light of all accessible, published cases, giving fifty references to recent literature.

Grasset, of Montpellier,³⁴⁸ relates the clinical history of a patient who had several successive, analogous lesions of the upper extremities. The skin of the hands thickened, stretched, and cracked open; the nails partly disappeared or became deformed; besides which, the patient presented symptoms of thermo-anæsthesia and pronounced analgesia, without anæsthesia.

This syndrome, regarded as characteristic of syringomyelia, may be met with, according to Grasset, in various affections (neuritis, myelitis, tabes, hysteria, Morvan's disease), and may be absent in syringomyelia. It exists always where there is a lesion of the gray substance of the cord.

FRIEDREICH'S DISEASE.

Sänger Brown, of Chicago,⁴⁷_{Summer No.} publishes an interesting memoir on this affection, and examines twenty-one cases in which heredity is demonstrated. A very curious genealogical chart is given, showing no less than twenty-four members attacked by Friedreich's disease. In all the cases the reflexes were exaggerated.

Burgess²_{Apr. 9} showed, at the Sheffield Medico-Chirurgical Society, two cases of Friedreich's disease,—one, in a girl aged 12 years, with marked tabeto-cerebellar gait, swaying of the trunk, and slow nodding of the head. Superficial reflexes were present, knee-jerks absent. No ataxy of the arms. Speech unaffected. None of her brothers and sisters are similarly affected. The other patient was a man, aged 26 years, with ataxic gait, nodding of the head,

twitching of the mouth, and distinct affection of the speech. A sister was said to be similarly affected. Superficial and deep reflexes were exaggerated. Both feet were high-arched. There was no pain, or any sensory disorder.

Schmidt²⁸²_{Feb.} publishes a case, in a girl aged 21 years, one sister being affected in the same way. Speech is scanning; there is slight nystagmus; sensibility of the skin is unaffected; there is loss of patellar tendon-reflex; no ankle-clonus. James Stewart²⁸²_{Jan.} reports a case in which there was no nystagmus, sensorial or vesical trouble, this serving to distinguish the disease from tabes.

Leegaard³⁶⁹_{May} details three complete cases in the same family. Madison Taylor²⁴²_{Feb.} also noticed it in two brothers, associated with symptoms of spinal chorea. Burr²⁴²_{June} reports a typical case in which the reflexes were absent.

Richard Geigel³⁴_{July 5} presented two brothers attacked with Friedreich's disease. A remarkable symptom was the existence of a special nystagmus in connection with conjugate deviation of the axis of the eyes. Thus, if the patients turned round to the right the eyes remained to the right, and there was nystagmus to the right with slight movements toward the left. This was reversed when the patients were made to turn to the left. Mendel has elsewhere described this phenomenon, hitherto unexplained.

Van Engelen,⁴⁵⁴_{Nov., '01} in a contribution to the anatomo-pathological study of Friedreich's disease, agrees with Déjerine and Letulle, who regard it as due to the neuroglial sclerosis or gliosis.

David Inglis²⁴²_{Jan.} reports a case of Friedreich's ataxia, in a boy 6 years of age, in which the symptoms conformed accurately to Friedreich's own summary of the character of the disease, viz., impairment in the combination and harmony of the movements, developing gradually and spreading from the lower to the upper half of the body, and always involving, finally, the organs of speech, etc., etc.

A review of the thirteen recorded autopsies shows a practical agreement that the pathological condition underlying the disease consists in a progressive sclerosis, which always affects the column of Goll; the column of Burdach also, but not so completely; the direct cerebellar tracts with Clarke's column in most cases, and the crossed pyramidal tract in some cases, but the sclerosis is here not so intense. The author contends that the symp-

toms of Friedreich's ataxia afford a demonstration that these tracts do not convey sensory impulses upward, but that they are the main tracts for the conveyance of co-ordinated impulses downward.

Syphilitic Pseudoparalysis.—Chaumier, of Tours, ¹⁰⁵³_{Jan.10} has published a case of this affection, still called Parrot's disease, in an infant 10 days old, in whom, after the second month, all the manifestations of hereditary syphilis appeared, recovery following specific treatment. The case presented this peculiarity, that the paralysis had a tendency toward spontaneous cure, and that all four extremities were attacked, which rarely occurs. Moncorvo, of Rio de Janeiro, ⁶⁷³_{Oct.} reported three cases of Parrot's disease in which the parents presented syphilitic lesions and the children signs of hereditary syphilis. Here also the result obtained from mercurial treatment shows that syphilitic pseudoparalysis is not absolutely fatal.

General Arthritic Pseudoparalysis.—Klippel, of Paris, ⁹²_{Apr.10} recognizes three varieties of general paralysis in arthritics: 1. General paralysis, pure and classic. 2. General paralysis with classic lesions, to which are added other lesions (atheroma, etc.), which may produce secondary symptoms. 3. General pseudoparalysis, corresponding to lesions other than those of true general paralysis. The erosions and meningitis are wanting, on one hand, and on the other the microscopic diffuse inflammatory lesions are replaced by a fatty degeneration of the capillaries and the nervous elements.

LOCALIZED PARALYSES.

William Evans ²⁴²_{June} reports three cases of Bell's paralysis and concludes that secondary contracture is not rare in this paralysis, and that this contracture may arise even after an apparent cure, and, finally, that the patient may still use, sometimes even in an extraordinary manner, the affected muscles.

Harris ¹⁰⁵⁵_{July 1} describes a case of wrist-drop or musculo-spiral paralysis, the beginning of which was sudden and the recovery rapid, without finding any manifest cause, except, perhaps, that of a vicious attitude. This attitude, assumed during sleep, was the cause of a paralysis of the right upper member in a case reported by Lyonnet, of Lyons. ²¹¹_{Sept.11}

Brissaud, of Paris, ³_{Apr.27} relates a typical case of radicular

paralysis of the brachial plexus following vertebral diastasis, apparently situated at the level of the fifth vertebra. Coincident with paralysis of the left upper member, a spasmodic paralysis of the lower member on the same side existed, probably due to intrarachidian hæmorrhage in the locality of the pyramidal tracts. Besides this there was motor paresis of the left upper member, which must have been due to the same hæmorrhage, which slightly touched the motor column of the opposite side.

Onanoff ⁹⁴_{Nov., 91} observed a radicular paralysis of the brachial plexus, following traumatism, in a young boy of 12 years. This paralysis was complete, and the case was so much the more interesting because of its rarity. Instead of the anæsthesia characteristic of similar cases, only anæsthetic areas were found. Deep sensibility had completely disappeared, and there was a lowered temperature in the region of superficial anæsthesia. Pagenstecher, ¹²⁶_{July 15}, having observed various cases (one not published), traces the symptomatology of paralysis of the brachial plexus and of the circumflex nerve. In almost all the cases of supposed paralysis of the brachial plexus it was not the plexus, but the corresponding roots which were the seat of the lesions. Consequently, the paralysis, as the author demonstrates by means of diagrams, more often follows the topography of these roots.

Bernhardt ⁷⁵_{May 1} relates a case of traumatic bilateral paralysis of the brachial plexus, occurring in a woman kept for one hour under chloroform, the arm being maintained in a backward and elevated position. Arth. Strauss ¹³_{July 18} reports two cases of peripheral brachial paralysis, with partial anæsthesia, both of traumatic origin. In the first case there was hyperæsthesia to heat and diminution of sensibility to touch and to pain; in the second case there was only anæsthesia to pain and to cold. Windscheid ⁷⁵_{Apr.} describes a case of isolated paralysis of the musculo-cutaneous nerve. But one other similar case is known in literature. A man, after having carried a block of marble on his shoulder, experienced a numbness of the thumb and in the anterior portion of the right forearm, which he could bend with difficulty, the biceps alone being paralyzed. Tactile sensation was diminished and pain almost entirely absent in the antero-external part of the forearm and in the whole thumb. The paralyzed biceps presented no trace of De. R., the traumatic muscular reaction of Rumpf; indirect faradi-

zation produced, in different points of the muscle, an intense wave, caused by short shocks when the current was opened after slight talamization of the muscle. The fact that this reaction is localized in the muscle and not reproduced by any other excitation proves its direct traumatic origin; and, for this reason, Rumpf constituted it a sign of traumatic neurosis. Bernhardt⁷⁵_{Apr.} relates two cases of isolated paralysis of the musculo-cutaneous nerve. In the first the paralysis appeared three weeks after dislocation of the humerus, which had been reduced immediately. The only movement remaining affected was flexion of the forearm. The only disturbance of sensibility was a slight anæsthesia of the dorsum of the hand. The second case was produced after serious contusion of the shoulder. Faradic excitability was abolished, the galvanic formula in both cases being $ACC = CCC$. The second patient was cured.

Heusner⁶⁰_{Feb.11} describes an apparatus which allows of the use of both hands in radial paralysis, by causing reposition of the extensors. Lewin⁴¹_{Feb.18} relates a case of peroneal paralysis following intra-muscular infection. All the muscles innervated by the deep and superficial peroneal nerves were paralyzed. It is the first time that he has seen infection produce a paralysis of this kind. Bassett Smith reports a case of paralysis appearing in a pearl-fisher on removal of his diving-suit. Suckling, of Birmingham,²_{May 23} quotes a case of paralysis of the diaphragm, two days before death, from alcoholic paralysis. Thomas Harris, of London,²_{July 2} apropos of a serious case of diphtheritic paralysis, calls attention to the point that depression of the epigastric and hypochondriac regions, on deep inspiration, is not always indicative of diaphragmatic paralysis.

Brunon, of Rouen,²⁰³_{Mar.1} brings forward two cases of infantile pseudoparalysis by auto-suggestion. These two children, of 17 months and 3 years respectively, simply from fear, showed paralysis of an arm, without fever,—a paralysis which disappeared spontaneously in two or three days.

Geo. Pirie²_{Feb.26} relates a case of pseudohypertrophic paralysis in its first stage, in a child of 8 years. Railton⁹⁰_{Mar.} observed the lesions of spasmodic double hemiplegia (infantile) in an idiot. The pia mater and arachnoid in the motor zone were thick, opaque, and adherent. Under the microscope the pyramidal tract in the protuberance and the cord were found to be perfectly normal. In the

brain, meningo-encephalitis of the motor zone had determined a diminution in the number of large cells and a neuroglial sclerosis; but the small number of lesions contrasted with the marked degree of motor troubles.

Goldflam¹¹⁴_{vi} reports a case of hereditary periodic paralysis. The patient was 18 years old. After having once been paralyzed in the four members, he suffered more and more frequently from attacks of this kind, which were also more prolonged and preceded by itching. Eleven members of the family were subject to intermittent attacks of paralysis. Although the author does not so state, this appears to be a case of hysterical paralysis, arising from imitation.

Ferguson, of Toronto,⁶¹_{Jan.9} studies paralysis occurring after acute illness. He establishes (1) that these paralyses are due to the direct action of the virus of the disease; (2) that they are due to some poison left in the system by the disease, which acts after the disease itself has disappeared; (3) that they are due to some other poison that acts conjointly or in association with that of the disease, but may act on those who have not had the disease. He concludes from several cases, which he reports, (1) that paralysis following acute contagious diseases is not due to some associated poisoning; (2) that some of the cases are due to the direct action of the specific poison of the disease; (3) that some cases of paralysis come on at a date when we can no longer believe that the specific poison of the disease is in activity, and that they are due to some poison left in the system, or some weakened state of the nervous tissue.

Imogene Bassette, of Philadelphia,²⁴²_{July} gives a general review, with a large number of original cases, of the paralyses of children during and after infectious diseases. Walker and Carter, of Massachusetts,⁵_{July} describe a metal-turner's paralysis, giving three cases. The disorder consists, briefly, of complete atrophy of the muscles of the left hand supplied by the ulnar nerve, with very slight sensory disturbance, and slight, dull pain and tenderness over the ulnar nerve, the pathological process being probably neuritic, though of a somewhat peculiar type. The practical point to the clinician is the distinction between this disorder and progressive muscular atrophy.

Morton Prince, of Boston,⁵_{July} gives three cases of traumatic

hysterical paralysis, of twenty-nine, twenty-eight, and twenty-nine years' standing, in men; important cases, as regards prognosis, of these traumatic paralyses. Kimura, of Tokio, ⁶⁷³_{July} relates experiments made to discover the nature of the poison contained in certain oysters of Japan, producing paralysis in the lower members. He found it to be tyrotoxicon, arising from water contaminated by human dejections, and having nothing to do with the nature of the oyster. Lorenz ⁵⁷₉₁ showed a young man of 17, attacked by congenital spasmodic paralysis, which prevented him from walking. Lorenz treated the case by tenotomy and tenectomy of the tendons of the toes, cure, as far as walking was concerned, being thus effected.

Gombault, of Paris, ⁴⁵⁷_{Feb.} reports a case of alternate paralysis in a woman 76 years old. The autopsy showed sarcoma of the dura mater in the middle fossa, besides a large area of softening in the right half of the pons. The pyramidal cords were affected by this lesion, as well as the roots of the facial and the abducens nerves and the middle cerebellar peduncle. The nuclear cells of the facial and abducens were atrophied and the roots of the facial were completely degenerated.

FACIAL PARALYSIS.

Lusanna ⁵⁹⁴_{Oct., '90} ¹⁹_{June 4} made quite an extended study of the course and disease of the seventh pair of cranial nerves. He divides this nerve anatomically into five portions: cerebral, bulbar, intra-cranial, inter-cranial and extra-cranial. The differential symptoms indicating the seat of the disease in its course are: cerebral, conservation of reflex phenomena; bulbar, paralysis of the extremities; intra-cranial, injury to neighboring nerves; inter-cranial, gustation of the anterior part of the tongue abolished, hyperæsthesia of audition; extra-cranial, paralysis of the facial muscles of the palate.

Bernhardt, ⁴ in fifty-five cases of facial peripheral paralysis, has met with it thirty-two times in men, twenty-three times in women, 55 per cent. being on the right side. Pain existed in thirty-two cases. Bernhardt contests the value attributed by Testay to pain in the prognosis and diagnosis of the affection, and the frequency of ear diseases, admitted as a cause by Gellé.

Goldflam ²¹²_{Jan.} considers four cases of facial paralysis occurring in syphilitic subjects a very short time after the primary lesion.

F. Schultze¹³_{Sept.15} reports a case of congenital facial paralysis, with paralysis of the abducens of the eye, due to a lesion of the nucleus. Muller, of Vienna,²²_{Feb.10} relates a case of right facial paralysis with left blepharospasm. Hervouët, of Nantes,¹²⁷_{Feb.12} publishes a rare case of unilateral facial paralysis accompanied by zona of the same region, a co-existence which he can only explain by inosculations between the filaments of the facial and the trigeminus nerves.

Stacey Wilson²_{Nov.28,'91} reports a case of combined paralysis of the seventh and the eighth pairs. Koslowski²¹_{Mar.28} describes a case of double facial paralysis with deafness, of traumatic origin. There were also pupillary inequality and ocular paresis. The author believes there was a lesion of the facial trunk, with probable fissure of the base of the cranium at the level of the median fossa.

Delprat⁴⁵²_{Jan.} quotes a case of bilateral hysterical facial contraction, causing a smiling expression on the right side and a sad expression on the left side, which was cured by hypnotic suggestion. Robertson²¹³_{Nov.,'91} reports a case of double facial paralysis of rheumatic origin, in which one side was affected after the other had almost recovered.

Imogene Bassette¹⁰⁵¹_{Jan.} reviews the treatment of the different varieties of facial paralysis, and particularly recommends electricity. Onanoff⁵⁵_{Jan.9} has made some interesting researches on functional facial asymmetry. This asymmetry sometimes affects the bone, sometimes the facial muscles, or, more exactly speaking, the functions of these muscles; the chief manifestation of this muscular asymmetry is the inability to close one of the eyes and, while keeping it closed, to shut the eye on the opposite side. The wrinkles are deeper on the side of the eye which can be closed alone, and the voluntary and emotional movements are fuller and more precise. The subjects attacked by facial functional asymmetry present at the same time an inequality of visual acuity; the eye which cannot be separately closed is the one which sees the least.

Benedikt, of Vienna,²²_{Jan.27} showed a case in which one side of the tongue was paralyzed and one side of the head was cephalalgic. The patient under a short treatment of iodide rapidly improved. Leresche²⁰⁰⁷_{'91} has studied glosso-labio-cerebral paralysis of the pseudobulbar variety. The most important of the signs which distinguish it from Duchenne's disease is the absence of

atrophy of the paralyzed muscles. The lesions producing it are found the more often either in the external segment of the lenticular nucleus, or more rarely in the cortex cerebri, at the base of the ascending frontal convolution.

Brück ⁶²²₉₁ reports a case of glosso-labio-pharyngeal paralysis in a child 12 years of age. Typhoid fever was to be looked upon as the cause of the disease, which, on account of the rapid and complete recovery, must be considered as functional. Peltesohn ⁶⁹_{Dec. 31, '91} describes a rare and curious case of facial cramp of nasal origin, and recalls another case reported by Fraenkel. The disease began at the age of 14, by twitchings in the left eyelid; the entire left side of the face became affected later. An hypertrophy or tumor was found in the left inferior turbinated body. The nasal mucous membrane was painful to the touch. Ablation of this tumor by galvano-cautery led to a cure which was still permanent after ten months.

Facial Hemiatrophy.—Progressive unilateral atrophy of the face is the subject of a general review ¹_{Mar. 12} in which the principal cases on record are collated. Preobajenski ⁹⁴ and Mouratoff ⁹⁴ have reported two new cases of this rare affection, developed in young subjects from 12 to 14 years of age. Skyrme, of London, ²_{Mar. 26} gives a case, in a child of 7, the commencement of which dated from the age of 3½ years. Esteves, ¹⁰⁵⁰_{Mar.} in the course of a general review, reports an excellent example in a young girl of 14. A complete study, with an additional new case, has been made by Popoff, of Warsaw. ⁹⁴_{Nov., '91} This writer states that the cases already recorded may be divided into several classes, one of these including cases in which the condition is dependent on an affection of the fifth pair (usually the result of traumatism). In another class the symptoms indicate the dependence of the disease on an affection of the sympathetic, while a third variety, of which the case reported by the author is an illustration, forms a connecting link between these two.

Dercum, of Philadelphia, ²⁴²_{Feb.} proposes for the treatment of facial hemiatrophy, or at least as a means of arresting it, the resection of the various branches of the trigeminus as far as possible, in such a way as to interrupt the communication between the trophic centre and the peripheral distribution. Scheiber, of Budapest, ⁸_{June 23} publishes a case of total left hemiatrophy.

MYOPATHY—MUSCULAR ATROPHY.

Von Souza²³_{July} records two cases of the juvenile form of Erb's muscular atrophy, cases exactly corresponding to the description given by Erb in 1884. The special characteristics of these two cases lie in the fibrillary contractions, remarked relatively early, which increased in proportion to the progress of the disease. Their existence, however, does not appear to be of great importance in the diagnosis, even according to Erb. Warrington, of Manchester,⁹⁰_{Feb.} quotes two cases of the same affection. Rovighi and Levi,⁵⁹¹_{July} apropos of three cases of progressive primitive myopathy observed in the same family, in which very painful cramps existed in the calves of the legs and in the legs themselves, question if there is no direct relation between primitive progressive myopathy and Thomsen's disease, which is also a muscular affection, clearly presenting an hereditary character.

Santisson, of Stockholm,⁶⁸_{July} records a case of progressive muscular dystrophy in a little girl of 6, without hypertrophy, without muscular jerks or reaction of degeneration. Reflexes were absent. Examination of the cord and of the roots revealed nothing abnormal, neither was there anything abnormal in the intra-muscular nerve-bundles. There was simple atrophy of the muscular fasciculi, without fatty degeneration, with simple proliferation of the nuclei. Primitive muscular atrophy sometimes begins rather late. Walton and Carter⁴⁵¹_{June} quote a case of the scapulo-humeral type, which began at 37 years of age. In default of an autopsy the diagnosis is doubtful.

A case of primitive myopathy, reported by Frederick Peterson,¹_{July 16} the diagnosis resting between the juvenile form of Erb and the type shown by Landouzy-Déjerine, shows that all the cases of muscular atrophy belong to the same family, and that all varieties are of the same type. The diagnosis is not always easy in muscular myelopathic atrophy, as is testified by a case of Journée,⁷³_{Feb. 27} in which it was impossible to decide whether the case was one of Duchenne's disease of the scapulo-humeral type or juvenile atrophy,—Zimmerlin's type. The patient was 22 years old when the disease began. It first showed itself in the forearm and the smaller muscles of the hands; there was fibrillary contraction, but no reaction of degeneration; the pseudohypertrophy had extended to several muscles,—abnormal phenomena in both cases.

In the case quoted by Kallmyer,²¹_{Mar.21} muscular pseudohypertrophic dystrophy occurred in a child of 10 years, which presented the classic symptoms. W. Roth⁹⁴_{July} reports a case of progressive muscular atrophy of the peripheral type (peroneal). The inferior members were deformed; there was complete degeneration of the muscles from the knees, and various degrees of atrophy of the thigh-muscles. The atrophy of the superior members was less marked and gradually more pronounced in the more or less peripheral parts. There was absence of patellar reflexes, and no pain or anæsthesia; quantitative diminution of electric contractility. The disease began at the age of 2 years. Roth believes that this peripheral form belongs to the transition period of Friedreich's disease. Beside this case are ranged the cases in which spinal alterations are absent, and in which there are only present various degrees of alteration of the peripheral nerves. It is to be supposed that there exist cases in which alterations of the nervous systems are entirely wanting.

Muscular atrophy of spinal origin is far from being clearly understood, and cases with autopsy are always interesting; such, for instance, is that of Alzheimer,³⁶⁸ of myelopathic muscular atrophy, in which degeneration of several bulbar nuclei was found, not resembling the atrophy habitually observed in cases of bulbar paralysis, a degeneration which was, perhaps, caused by the syphilitic alterations of the vessels of the base and a diffuse alteration of the cells of the gray matter of the cerebral cortex, without changes in the vessels, analogous to what is generally seen in cases of general progressive paralysis. Riley²⁴²_{Aug.} records a case of atonic muscular atrophy. At the autopsy atrophy of the cells and anterior roots was found, complicated by a certain degree of degeneration in the pyramidal tracts. This is confirmatory of Gowers's opinion that, in this form, degeneration extends upward to the cortical layer of the brain. Hoffmann⁶⁹_{Aug.25} gives the history of several children of two different families attacked by progressive muscular atrophy of spinal origin. In all the cases the progress was symmetrical and chronic, and death followed, without exception, between the first and fourth years. It is to be regretted that no autopsy supports the theory of the spinal origin of this atrophy. Ganghofner⁸_{Jan.21} describes a case of progressive neurotic muscular atrophy in a girl aged 12, whose brothers and one sister were similarly affected,

three other children being healthy. Ganghofner believes this case to be distinct from Erb's progressive muscular dystrophy, an interstitial neuritis with fatty and parenchymatous degeneration of the muscles. Hoch⁷⁶⁴_{Jan.,Feb.} has also observed a similar case, which he connects with multiple neuritis. These cases of neurotic muscular atrophy form a transition period between spinal and myopathic atrophy. Annequin,²⁴³_{Feb.} in a work on pseudohypertrophic myopathy of the inferior members, of infectious, neurotic, or vascular origin, independent of congenital dystrophy, concludes that chronic hypertrophic myosclerosis of the inferior members may have no relation to pseudohypertrophic congenital myopathy, but may be the remains of acute or subacute myositis, generally of infectious origin, only differing in the degree of gravity, or tenacity, from the more or less ephemeral myositis frequently observed in convalescence from typhoid fever or other infectious diseases, and generally attributed to infectious endarteritis. Hypertrophic myosclerosis may be met with in sciatic neuritis and in varicose subjects.

Darkschewitsch⁶⁷³_{Apr.} describes muscular atrophy following joint lesions as a peripheral atrophy commonly met with. The malignant form is more rarely seen, and is incurable, being central, with reflex lesions of the spinal cord. Donald Fraser²¹³_{July} quotes a case of atrophy of the muscles of both arms in a man who had suffered from an accident in which both these members had been stretched for twenty minutes. Electric treatment proved of great benefit. Lemoine²¹¹_{Dec.27,'91} reports the case of a man in whom atrophy of the deltoid, biceps, triceps, and supinator longus muscles was caused by the compression of a strap used for carrying parcels. Winscheid⁷⁵_{Apr.1} observed a case of isolated paralysis of the cutaneous muscles of the arms after a blow, in which Rumpf's reaction existed, which is especially met with in cases of traumatic neurosis, and Winscheid considers this reaction of secondary importance. Vilcoq, of Soissons,⁵⁷⁷_{Sept.} relates an interesting case of paraplegia, of neuritic origin, with paralysis of the sphincters and muscular atrophy, principally affecting the extensors of the leg, due to ethylic intoxication, and another case of articular amyotrophy following arthritis of the knee.

Redard, of Paris,³_{Apr.30} describes two cases of congenital contractures, generalized in several parts of both superior and inferior members. The contraction persisted during chloroform anæ-

thesia. There were no nervous troubles. By massage, electricity, tenotomy, and forced reposition, mobilization of nearly all the articulations was obtained. The origin is probably to be sought for in the prolonged vicious attitude within the uterus and in abnormal amniotic compression.

Kahler⁸⁶⁶_{June} demonstrated the case of a man, aged 18 years, who had received a severe fright, which was soon followed by muscular spasm of the left side and then of the right. Spasm, usually clonic, sometimes tonic, of the muscles of the neck, threw the head back. Similar spasms occurred in all the extremities, especially the right upper. There was no spasm of the facial, ocular, or lingual muscles. During narcosis and sleep the spasms ceased. Kahler would classify this case with "convulsive tic," although it does not resemble the "maladie des tics" of Charcot and Guinon.

Rosenblith²⁴_{Dec. 6, '91} quotes a case of intentional cramp of the right deltoid muscle, cured by massage. Schultze, of Bonn,⁶⁹_{Aug. 25} reports a case of spasm of the tensor of the fascia lata, with great hypertrophy, and another case of tonic cramp of the thenar eminence, lasting a year, with hypertrophy of the hypothernar eminence.

Putnam, of Boston,²⁴²_{Sept.} states that patients suffering from akinesia algera experience severe pain during or after use of the muscles. The patients were all neurasthenic, and he describes a new case of this condition. Koenig, of Dalldorf,⁶⁸_{Mar.} publishes a long article on this affection, and reports a case analogous to those of Möbius, in a woman of 48 years, already affected by hypochondriac paranoia. The author compares the troubles observed in this woman with those met with in traumatic neuro-psychoses. The existence of hysterical troubles admits of the supposition that, in reality, this was simply a case of hysteria with complications.

Metchnikoff and Soudakewitsch²⁶²_{Jan.} establish the fact that muscular atrophy, as well as certain pathological processes presenting the characteristics of parenchymatous inflammation, in the strict sense of the word, should be ranged under the group of phenomena caused by phagocytes. They particularly study the effect of trichina on the muscles.

Acute primitive myositis is rare. Lindner, of Berlin,¹⁹_{Mar. 26} reports a case in a man of 28 years, which ended in three or four abscesses in the left calf, followed by the issue of muscular sequestra,

without any apparent cause. In a case of Hamilton's¹⁹_{Mar.12} there was myositis of the deltoid, the cause of which was no better known. Mombel⁴⁵⁴_{June} reports a case of psoitis, with consecutive phlegmon of the iliac fossa, which was opened and drained and finally cured.

Progressive ossifying myositis was observed by Studsgaard, of Copenhagen,⁶⁷³_{Mar.} in a girl of 4 years. The left sterno-cleido-mastoideus had undergone osseous transformation and was removed, but soon afterward new osseous deposits formed.

Bernacchi⁸⁶⁸_{Apr.30} quotes another case of progressive ossifying myositis in a child of 7. A series of tumors were scattered over the head, the neck, behind the right shoulder, and on a level with the eighth rib. The last-named, situated in the latissimus dorsi, was removed. Thirty-seven cases of this singular affection have so far been published. Rabek⁴⁵¹_{Sept.} reports a case in which the osseous tumors were extremely numerous, increasing greatly in size and causing the death of the child. Larger²⁰⁰⁷ distinguishes three classical forms of infectious primitive acute polymyositis: (a) The very intense form,—sudden commencement, rapid progress, always ending in death. (b) The acute form,—sudden beginning, slow and progressive invasion. Evolution longer than in preceding case; termination, at end of six weeks, two months, or still later, by death; very rarely cured. (c) The subacute form, beginning in a similar manner; after a time, generally short, the symptoms abate and the patient recovers.

The etiology of this affection, which the author regards as a nosographic entity, is still hardly known. It is certainly infectious. Oddo, of Marseilles,⁴⁶¹_{Dec.15,'91} records a case of polymyositis, brought on by muscular overwork, which he considers as a primitive essential myositis. Bozzolo, of Turin,⁶⁹_{Feb.11} reports a case of infectious multiple myositis, due to the staphylococcus pyogenes aureus. Lewin⁸⁴⁴_{May 7} reports six personal observations on diffuse interstitial syphilitic myositis. He has found a muscular atrophy analogous to progressive muscular atrophy, with the addition of vascular sclerosis and the formation of connective tissue. Antisyphilitic treatment is always effectual in these forms.

ACROMEGALY.

Roberto Massalongo, of Padua,⁵⁸⁹_{July 12} gives the history of acromegaly, and adds a new case. He rejects the opinion of Marie,

that it is due to a lesion of the pituitary body, as myxœdema is due to a lesion of the thyroid. Stembo²¹_{Nov.9,'91} presents a new case. In proportion as the disease becomes better known cases multiply, and everywhere new ones are reported. Packard, of Philadelphia,⁵_{June} records a case of pure acromegaly with modifications of the visual field and bitemporal hemianopsia, in which there was hypertrophy of the pituitary gland. On the other hand, he quotes a case where the hypertrophy of this gland had caused no phenomenon of acromegaly; and, finally, a third case of this affection analogous to the acromegaly, which Marie, of Paris, has designated as "osteo-arthropathie hypertrophiante pneumique."

Reinhold Boltz, of Breslau,⁶⁹_{July 7} also reports a case in which rotatory nystagmus was observed, with bitemporal hemianopsia and atrophy of the optic nerves, probably caused by an hypertrophy or tumor of the pituitary body. Hare⁹_{Feb.27} reports a case with total atrophy of the left optic nerve and paralysis of the superior oblique muscle of the eye. In a case described by Appleyard, of York,⁶_{Apr.2} the absence of enlargement of the lower maxilla and of the tongue was observed; also the diminution of the visual field. The cases of Osborne, of New Haven,⁵_{June} of Gordon Brown,²_{Apr.23} Barrs, of London,⁶_{Mar.26} and Hutchinson,⁸⁰⁶_{Apr.} are classical; as are those of V. Tschish, of Dorpat,²¹_{Dec.7,'91} Litthauer,⁶⁰_{Nov.19,'91} Balzer,⁴²⁰_{Apr.8} Baruch, of New York,⁴⁰_{July} and of Gorgatschew.²¹_{May 23} In two cases reported by Tanzi,⁵⁸⁹_{Feb.22} an eye in one case and psychosis in the second case show that one cannot really say that there was a tumor of the pituitary body, but there is no doubt as to there being a cerebral lesion.

Bruzzi, of Zevio,⁵⁰⁵_{Aug.4} also records a typical case, the beginning of which appeared to date from an old cerebral affection, and in which hypertrophy of the thyroid was also observed.

Cepeda,⁶¹³_{Jan.15} in an autopsy upon a case of acromegaly, met with an hypertrophy of the pituitary body compressing the optic nerves, persistence of the thymus, and hypertrophy of the great sympathetic. Bard, of Lyons,²¹¹_{Apr.17} communicates a case with double nasal hemipia, due to compression of the optic chiasm by hypertrophy of the pituitary gland. Duchesneau²¹⁰⁰ reports an interesting case with autopsy, and calls attention to the amyotrophy which sometimes shows itself in this affection. The cause appears to be compression of the rachidian nerves of the intervertebral foramina, when the

bony rachidian lesions are well marked. The bones which undergo modification in acromegaly are those with red marrow.

By the side of acromegaly, of the Marie type, appears a certain number of analogous troubles. The diagnosis may be very difficult, as testified by Hare, ²⁴²_{Mar.} who in one case was doubtful as to whether the disease was not myxœdema. Bonnet, of Lyons, ²¹¹_{Mar.13} quotes a case of congenital hypertrophy of the extremities; Pisani, ²_{Sept.17} one of hypertrophy limited to the left foot, probably of congenital origin also. Möbius ¹³⁴_{Aug.15} reports an example of left hemi-hypertrophy in a boy of 14, and Moyer, of Chicago, a case of generalized hypertrophy of the left inferior member.

Foy ²²_{Nov.11,'91} designates, under the name of chieromegaly, the hypertrophy of a hand arising after ablation of small enchondromatous tumors.

NEURASTHENIA.

Lowenfeld, ⁶⁸_{July} considering the difficulty experienced in determining the reality of the troubles experienced by neurasthenics, has sought to group together all the objective phenomena of this neurosis, and examines them critically. He endeavors, especially, to reconcile neurasthenia with the uric-acid diathesis. His interesting work should be read in its entirety.

Grasset, of Montpellier, ²⁴_{Nov.,'91} attributes all neurasthenias to overwork of every kind: school overwork, professional overwork, political overwork. The symptoms may be placed under three heads: pain (cephalalgia, rachialgia); amyosthenia (sudden fatigue); mental state (psychic asthenia, nosomania, photalgia, diminution of memory and of attention). While regarding neurasthenia as independent of dilatation of the stomach (Bouchard) or enteroptosis (Glénard), Grasset recognizes that they may also exist as preliminary symptoms, as may also arterio-sclerosis.

Joseph, of Landeck, ⁴¹_{May 19} in studying the etiology of neurasthenia, admits that it is generally caused by whatever enfeebles the human organization by rather prolonged action. In women, especially, uterine losses and chronic endometritis are causes. The acute form of neurasthenia is rare, and almost always passes into the chronic form.

Umberto Stefani, of Padua, ⁵⁹¹ reports a detailed and interesting case of neurasthenia. The essential factor in the development of the disease is emotional, based on a state of irritability and weak-

ness of the nervous system. Side by side with this trouble auditory and visual hallucinations occur. As under the slightest excitement, emotional or otherwise, the vasomotor system reacts quickly, and the slightest stimulus causes an attack of agitation, so the least excitement spreading to the sensorial centres, visual or auditory, awakens corresponding images, and even gives them the intensity of real perceptions.

Paul Blocq, of Paris,⁴⁷₉₁ gives a general review of neurasthenia, and his remarks on local neurasthenia deserve special notice. This local neurasthenia or topoalgia, according to his expression, is characterized by one single symptom, although the disease may be hereditary and the patients show the characteristic neurasthenic mental state. This symptom is *localized pain*. Grandclément,²¹¹_{May 29} observed, in a patient attacked by most severe neurasthenia, intense visual troubles: muscæ volitantes, accommodative asthenopia, photophobia, sensitiveness of the eyeballs. Analysis of the urine showed an excess of total acidity. Pfaffenstiehl, of Stockholm,⁶_{Apr. 2} establishes the relation of neurasthenia to hyperacidity. He regards this hyperacidity as the result of the quantity of gastric juice.

Krafft-Ebing, of Vienna,⁵⁷_{Mar. 13} describes a new and rare form of sexual neurasthenia with fixed ideas, and reports four cases: two men and two women. These patients were of degenerate heredity, having abnormal excitability of the genital organs and abnormal erotic ideas always present, and an obscene mental condition provoked by the sight of certain objects.

The treatment of neurasthenia is, as usual, the subject of numerous articles, owing to the difficulty experienced in curing this persistent affection. Lacaille, of Paris,²¹_{May 8} demonstrates the good effects obtained from the use of static electricity in the treatment of neurasthenia following influenza. Constantin Paul, of Paris,¹⁰_{Feb. 16} has instituted a new treatment, consisting of hypodermatic injections of nervous substance prepared according to the procedure of Brown-Séquard for testicular liquid. This treatment, however, hardly appears to have given good results, except in the hands of its author. Static electricity is extolled by Vigouroux,¹²²_{May} and still appears to be the best treatment. Ribar Perdigo, of Barcelona,⁴⁹¹_{Nov. 30, '91} insists on the value of Weir Mitchell's method, and rejects suggestion and hypnotism. José de Letamendi,⁴⁵⁶_{May 25} recom-

mends moral treatment. Frank Norbury, of Jacksonville,¹⁰² uses various well-known modes of treatment according to the case. In fact, putting aside Constantin Paul's treatment, which appears to be somewhat illusive, nothing new has been discovered; the old methods must be adhered to.

CHOREA.

The relations existing between chorea, rheumatism, and diseases of the heart have been the subject of new researches on the part of Walton and Vickery,⁵ who arrive at the following conclusions: 1. Neither rheumatism nor heart disease is essential to chorea. 2. The preponderance of evidence points toward the conclusion not only that rheumatism and organic heart disease conjointly appear more frequently in the choreic subject than can be accounted for by coincidence, but that the same is true of each of these affections separately. It follows, therefore, that rheumatism predisposes to chorea, and organic heart disease has the same tendency. 3. Fatal cases are generally associated with organic heart disease, and probably with organic disease of the central nervous system, notably cerebral embolism. 4. There is a large class of functional cases, mainly reflex and fostered by circumstances tending to produce functional symptoms in general. 5. The pathological connection between rheumatism and chorea, excepting in the cases where emboli are produced by accompanying endocarditis, is still obscure; probably no one theory is applicable to all cases. 6. The mechanism by which the peculiar phenomena of chorea are produced is unknown.

Morris Lewis, of Philadelphia,⁹⁹ studying the seasonal relations of chorea and rheumatism for a period of fifteen years, admits that chorea and rheumatism are periodical; the least severe attacks in chorea occurring in October and November, and the most severe in March and April. It is the same in rheumatism. These two affections are considered to have the same causal relation with meteorological conditions.

Duckworth¹⁵⁷ regards chorea as a symptom, and not as a disease, the principal cause being rheumatism acting on a nervous subject. He seeks to prove that rheumatic fever is a nervous disease. A long discussion, with no satisfactory results,⁹⁹ took place at The Boston Society for Medical Improvement, between Webber, Morton, Prince, Bullard, Putnam, Jeffries, and others.

G. Sée ³¹_{Jan. 21} published a series of cases collected by him, from 1845 to 1850, to demonstrate the rheumatic nature of chorea. Nevertheless, the question is far from being settled.

Franklin Stahl ⁴⁸_{Dec., '91} quotes a case of chorea in a child of 6, who succumbed to endocarditis. Frank Fry, of St. Louis, ²⁴²_{Sept.} relates cases illustrating the co-existence of chorea with paramyoclonus multiplex, athetotic movements, and tremors. Charcot ²¹²_{Aug. 10} reports, in a clinical lecture, a series of cases of chorea of a paralytic form, and insists on the difficulty of diagnosis when the chorea remains unilateral for some time.

Wm. Dale, of London, ⁶_{Nov. 9, '91} thinks (1) that, although chorea is best defined as a functional disease, to call it a symptom only is simply a strife of words; (2) that, from the phenomena of hemichorea and its relation to hemiplegia, one may assume that the seat of the lesion in chorea is in the sensori-motor ganglia at the base of the brain; (3) that the disease very frequently occurs after acute or subacute rheumatism, but very many cases are also observed having no known connection with rheumatism in any form.

Philip Roy, of Washington, ⁵⁹_{Aug. 20} reports a case of chorea in a negro, which contradicts the opinion hitherto held, that it was unknown in the colored race. Howard Murphy ⁶_{July 2} describes a case in a woman of 36, who recovered, it having appeared after a simple angina. In a clinical lecture at the Philadelphia Hospital James Hendrie Lloyd ⁴⁵¹_{July} cites a case of chorea in pregnancy, one of chorea in the adult, and a case of electric chorea (Dubini's disease), which is extremely rare.

Turner ²_{May 21} has found in chorea a tumefaction of the pyramidal cells of the deep layer of the cortical substance of the brain. Sections were made on the level of the fissure of Rolando. It must be remarked, however, that one of the patients was suffering from puerperal fever and the two others were cardiac and albuminuric cases.

Fletcher, ⁶¹⁷_{July} in two cases of chorea, found intercerebral ossicles occupying the longitudinal sinus, or the falx cerebri, or tentorium. The chorea was accompanied by insanity. The author seeks to discover the rôle of these ossicles in chorea and insanity. Kromer ³⁶⁸ found, in a woman of 35, chorea from the age of 11, given to onanism and becoming insane, the following lesions:

On section and microscopic examination of the brain, numerous centres of various dimensions in the central ganglia and internal capsule, the lesion being more marked on the left; atrophy of the pyramidal tract and all the right half of the cord. The author, remarking that all the lesions hitherto found in all cases of chorea are in the pyramidal tracts or their neighborhood, thinks that chorea is a disease related to lesions of the pyramid.

Wollenberg,⁶⁸_{Apr.} from examination of the brains of six patients who died from chorea, gives the following results: 1. In some cases of chorea he observed a definitely limited district of the lenticular nucleus (the globus pallidus, not the putamen), numerous strongly-refractile substances of roundish form, which were very resistant to coloring matters and reagents, and which were, for the most part, laid along the sides of the blood-vessels in a peculiar way. 2. These substances are in no way characteristic of chorea; for they are found to be exactly similar in the brains of individuals who had never suffered from chorea. 3. These substances must be considered, in all probability, to be the calcification of an organic basis-substance, concerning the nature of which no positive opinion can be given.

In a case reported by Wellminsky, from the clinic of Pribram,⁴¹_{Jan.14;} ¹²¹_{May} of a young woman of 23 years, who died of rheumatic chorea, numerous macroscopic and microscopic spots of softening were found, both in the medullary and cortical portions of the cerebrum, especially in the anterior lobes, but the vicinity of the posterior section of the internal capsule was spared.

Ch. Richet and Triboulet, of Paris,⁷⁵¹_{Apr.9} presented, before the Paris Society of Biology, an adult dog, which had been made choreic by injection of blood from another dog affected with chorea. There was found (1) generalized muscular atrophy; (2) cutaneous trophic troubles on different parts of the body; (3) rhythmic convulsions of the members, which only ceased during sleep, when under the influence of strong doses of chloral; (4) lowering of the temperature.

Triboulet¹¹⁸_{Dec., '91} reports one case of Leredde and two personal observations of secondary infection by the staphylococcus in chorea. In Leredde's case an aortic affection arose in the course of the chorea, accompanied by general symptoms of infection, without rheumatism. Blood-cultures, during the period of the infectious

symptoms, gave rise to colonies of staphylococci, which disappeared afterward. In the second case the patient had repeated attacks of rheumatism and chorea, with endocarditis. Pericarditis caused the death of the patient, and cultures of the liquid showed colonies of the same microbes. In the third case, of chorea and rheumatism without cardiac lesions, blood-cultures gave the same results. The author concludes that it is necessary, from a clinical stand-point, where there is aggravation of the general condition in chorea, to examine the blood for bacteria, especially if there be any cardiac or articulatory complications.

Moussous, of Bordeaux, ¹⁸⁸_{Jan.31} has studied the toxicity of the urine in chorea, and has obtained the same results as with normal urine.

Numerous articles have been written on the use of the newer remedies in the treatment of chorea. Marcel Baudouin ³_{Mar.} sums up the treatment now in use in the hospitals of Paris. Nothing new is brought out in this article or in that of Don Bartolomeo Robert, ⁶³⁴_{June 15} who recommends physical and mental rest. Moncorvo ⁶⁷_{May 30}; ⁶⁷³_{Oct.} publishes two cases of chorea cured by exalgin, in doses of from 8 to 12 grammes (2 to 3 drachms) daily. Donal ²_{Sept.24}; ²⁴²_{July} also looks upon exalgin as a specific in this disease. Löwenthal ⁴_{Feb.1} has treated thirty-five cases with the drug, with good results in the majority. Baskett ⁶_{Apr.9} has successfully employed chloral hydrate, and Davies ⁶_{July 9} salicylate of soda. Gibert, of Havre, ²⁰³_{Aug.1} cured a serious case by suggestion in the waking state, in a child of 12 years, and Roussel ²²⁸_{Nov.15,'91} praises the old treatment by large doses of Fowler's solution.

Trowbridge ⁹⁸_{Jan.} establishes a relation between chorea and epilepsy, and gives a table of fifteen cases, in which these two affections were associated at different epochs in the same individual. Benedikt, of Vienna, ⁵⁷_{Mar.6} presents three cases of recovery: one of hysteria, with movements similar to those of Sydenham's chorea, and cured by injections of curare; the second, of writers' cramp, cured by cutaneous injections of phenic acid; the third, of tic douloureux, cured by resection of the trigeminus, with consecutive persistence of anæsthesia of the face.

B. Ouché, of Bordeaux, ⁷³_{Dec.5,'91} reports three cases of arrhythmic hysterical chorea in which the hysteria showed all the features of Sydenham's chorea, thus confirming the facts previously advanced

by Debove, Merklen, Chantemesse, Joffroy, Séglas, Roque, and Perret. Dettling²⁰⁰⁷ admits the co-existence of chorea and hysteria in a certain number of cases, but thinks that more often common chorea does not arise from hysteria, but that hysteria is capable of simulating it.

Roque²¹¹_{July 13} reports a case of rhythmic chorea with the primary manifestations of hysteria. Mackenzie²²_{Dec. 23, '91} observed a case of hysterical chorea, lasting four years, which he treated by blistering. Chas. K. Mills²⁴²_{Jan.} relates a case of rhythmical hysterical chorea, contractures, and anæsthesia of long standing, cured or greatly improved by a visit to Lourdes. Shaw³⁶⁴_{July 25} presented a case of rhythmical chorea, also hysterical. Alfred Britto, of Bahia,⁶⁴²_{Sept., '91} describes an interesting endo-epidemic of choreiform abasia at Bahia.

Chronic Chorea.—Schlesinger¹¹⁴ gives the history of three families, members of which suffered from hereditary chorea; also the principal characteristics of the affection, the nature of which has not yet been decided. Wharton Sinkler, of Philadelphia,¹_{Dec. 19, '91} also reports three new cases, unfortunately without autopsy. Schmidt, of Breslau,⁶⁹_{June 23} in publishing two cases of progressive chronic chorea, observes that the chief distinctions between this and ordinary chorea are: that it occurs later in life (from 30 to 40); that it is progressive in character, and accompanied by mental changes; and that it is the result of direct inheritance, and is incurable. Gray, of New York,²⁴²_{Sept.} reports a case of Huntingdon's chorea in a man of 45 years, and one, still more curious, of congenital chorea in a child, which he considers of the same nature. Thomas⁶⁹_{July 21} records a case of chorea accompanied by nephritis, resulting from scarlatina. The chorea appeared nine months after albumen was visible in the urine, and disappeared with it. This was certainly a case of chorea induced by intoxication.

Hemichorea.—Piggott and Edies, of London,⁶_{Apr. 23} report an interesting case, in support of the theory that embolus is the cause of chorea. This case was followed by paralysis (partial hemiplegia), in a child of 4 years, during convulsions of dentition. No autopsy confirmed the theory, which lays it open to question. Fraenkel⁶⁹_{Apr. 14} has met, in a case of hemichorea with severe hemiplegia, the following lesions: Atrophy of the first and second (left and right frontal) convolutions, of the ascending convolutions, and of the

paracentral gyrus; atrophy due to a cerebral endarteritis resembling syphilitic endarteritis. The basilar artery presented an enormous thrombus.

John Ferguson,¹_{June 11} observed a case of pure athetosis, with autopsy, in which macroscopic and microscopic lesions of the left thalamus were found, but no lesion of the motor, cortical, capsular, peduncular, or pyramidal tract. There was no sensorial trouble. The author regards the gray matter of the thalamus as cortical in relation to function, and as being the centre of nervous energy, and not as a means of communication for the numerous fasciuli connecting the various nervous centres. Legrain, of Paris, quotes a case of essential hemichorea in a child of 14 years, which he attributes, without proof, however, to a possible infection, which, in this particular case, might have been caused by the abuse of coffee.

TETANY.

Rémond, of Metz,¹⁰⁰_{Nov., '01} has written an interesting critical review on this affection, the pathology of which is not yet decided. The two causes the most recently advanced are ablation of the thyroid body and infection or intoxication. Owen²_{Feb. 6} reports a case in a man of 20 years, due to the first of these causes, which he regards, besides, as provoking an auto-intoxication; and Voss³⁴_{Mar. 1} quotes another, due to intoxication by carbonic oxide. Mahot¹²⁷_{Mar. 1} describes the case of a child of 18 months, affected with tetanus after broncho-pneumonia, but ending favorably. From this case and another, also cured, in a young girl of 18 years, after typhoid fever, this author is tempted to admit that the poisons secreted by the germs have a special influence on the large motor cells of the anterior horn of the cord. Bouveret and Devic²¹¹_{Jan. 31} have made researches on the pathogeny of tetany of gastric origin, from which they conclude that in animals the symptoms of contracture may be provoked by the use of the contents of the stomach of patients affected by Reichmann's disease,—gastric hyperacidity. But this tetany is only brought about through the presence of alcohol.

Their experiments, however, were made under special conditions, and new researches are needed in confirmation.

Chvostek,³⁷_{Sept.} in studying the action of electric currents on the painful nerves, on the auditory nerve, and on the resistance of the

skin in tetany, found the reaction of Brenner in a certain number of healthy persons subjected to strong currents. This reaction is readily obtained in tetany, and is modified in proportion to the tetanus. There is also hyperexcitability of the sensitive nerves, but cutaneous resistance is normal.

Schlesinger has also arrived at the following results as regards facial phenomena, or facial irritability, and Trousseau's symptom: 1. The facial phenomena may be found at any age, less frequently in healthy individuals than in sick people. 2. Mechanical overexcitability of motor nerves may be seen sometimes in individuals not affected with tetany; overexcitability of sensory nerves is more rare in such people. 3. Trousseau's symptom occurs only in tetany. In children it often leads to athetotic movements of the fingers. 4. There are slight chronic forms of tetany which seldom lead to spontaneous contractions; latent forms may exist for a longer or shorter time without any voluntary spasm, while during that time Trousseau's symptom may be present along with others. 5. There are tetanoid conditions where single symptoms may occur, or a combination of almost all except Trousseau's; from many of these a tetany may develop.

Finotti^{8 Jan. 30} advocates the use of Tizzoni's antitoxin in the treatment of tetanus. He treated two cases with antitoxin. Both were cured; the second case was very pronounced. Seventeen days after dislocation of the knee trismus set in; upon the succeeding days maximum development of general tetanus. Immediately after the appearance of these symptoms, antitoxin, to the amount of 0.5 gramme (8 minims), was injected daily, 4.80 grammes (75 minims) in all.

CONVULSIONS.

Convulsions in Childhood.—Frank Bressler^{196 Feb.} divides these convulsions into two classes: Central (centric convulsions), which depend upon some specific lesion of the brain (tumors, inflammations, etc.), and eccentric, caused by an irritation of the peripheral nerves acting in a reflex manner on the brain. He passes in review the causes of convulsions,—rachitism, dentition, gastro-intestinal irritation, and inflammations of the ear,—and distinguishes three periods,—pre-convulsive, convulsive, and post-convulsive,—of which he studies the chief characteristics, but adds nothing not already known.

Piogety²²¹_{May} communicated a case of persistent convulsion, lasting twenty days, in a child of 2 months, terminating in recovery, and very probably due to meningeal tuberculosis in a latent form.

Treatment of Convulsions.—Roheim, of Budapest, ⁶_{Jan.2} reports a case of eclampsia treated successfully by compression of the carotids after other means had failed. The patient was a robust man, aged 56, suffering from cancer of the bladder, with occasional hæmaturia. Pressure was made over the carotid, by means of the index and middle fingers, between the larynx and sternomastoid muscle, from before backward, against the vertebral column. He thinks the value of the treatment lies in the fact that, in compressing the carotid, we at the same time make pressure on a fasciculus of the sympathetic, which lies parallel with the artery. Walter Hearnden ⁶_{Feb.13} has applied the treatment of Roheim with the same success in a case of fits caused by cerebral hyperæmia. In a similar case Gordon Kelley ⁶_{Sept.17} also obtained cessation of the convulsions by compression of the carotid. Woolsey Blacklock ⁶_{June 11} recommends the administration of enemata of chloral hydrate for the treatment of convulsions in children. He has tried the same drug hypodermatically, but with less success.

MISCELLANEOUS.

P. C. Knapp ⁹⁹_{Sept.15} published a critical review on the nervous and mental consequences of influenza, and concludes that the most probable cause of the symptoms, in the majority of cases, is poisoning by some ptomaine produced by the bacteria of the disease.

R. Wernicke ⁹²⁵_{Aug.} gives a summary of the subject of degenerations and atrophies from a general pathological point of view. Féré, of Paris, ⁷⁵¹_{Feb.6} has sought to discover if, in the stupor following epileptic fits, bromide intoxication, etc., the individual offers the least resistance to infection, as in the case of hemiplegias. He has revaccinated a great number of epileptic patients, but observed no difference.

Mircoli ⁵⁸⁹_{Apr.29} has cultivated streptococci and staphylococci in the sciatic nerve and the cord in a case of ascending myelitis, and also in cases of hypertrophic cervical pachymeningitis, and of cerebrospinal meningitis. This fact supports the doctrine of infection as a cause of certain nervous affections. Harold Moyer ⁶¹_{Oct.1} sums up

the relation between the sympathetic and the cerebro-spinal nervous system, and especially insists on a certain number of points previously neglected by authors. F. Strong, of Cleveland, brings physiological and psychological considerations to bear on the laws of periodicity and on modern influences, and concludes that at the present time there is a great tendency to nervous affections, which it is necessary to combat. John Punton also studies nervous diathesis with relation to modern nervous diseases.

Murray Braidwood²⁶_{Sept. 1} distinguishes in nervous disorders secondary to certain acute infectious diseases of children, those which follow immediately from those which follow later. The nervous forms are varied. Laquer⁶⁹_{Aug. 25} quotes twelve cases, especially in women, of a special form of paræsthesia of the extremities, probably the result of nervous exhaustion after excessive domestic labor. Paul Schwerin¹³_{Apr. 15} publishes a work on the nervous consequences of poisoning by carbonic oxide, among which are certain paralyses, which he refers, contrary to the generally adopted opinion, to compression. Fjorodow⁸⁴⁴_{July 30} reports four observations of automatic laughter, which he considers as the result of inhibition of the will. Erben⁵⁷_{May 15} records three curious cases of nervous affection. In the first there was paralysis of the head of unknown cause, and differing from radicular or saturnine paralysis. In the second case the diagnosis lies between syringomyelia and lateral amyotrophic sclerosis. The third is a very interesting case of unilateral paralysis agitans.

Virchow⁶⁹_{p. 572} presented the case of a man who showed excessive development of muscles in the trunk and shoulders. This man suffered besides from a laryngeal affection, in the form of syncope of neurasthenic origin. Remak, who has studied electrically an analogous case, observed, in using an induction current, that after its minimum was reached the curve immediately presented its maximum.

Cullerre³⁶¹_{Jan.} publishes a curious article tending to establish the fact that sudden death is an evidence of degeneration, frequently observed in families with neuropathic taint. He gives eighteen cases in which the individual, without previous known illness, has died suddenly. In these cases mental or nervous diseases were traced, either in progenitors or in the descendants, the frequency of which indicates a marked family degeneration.

Luys²⁴_{Nov. 13, '91} calls attention to the modifications arising in the cerebral cortical layer, after the disappearance of different excitations. In an amputation of the left leg the right lobe was shorter than the left, and there was atrophy of the superior part of the ascending frontal convolution; in a woman, deaf for forty years, there was atrophy of the occipital lobes; in an amaurotic woman there were patches of softening on the first and second frontal lobes; and, finally, in a woman affected by chronic rheumatism with ankylosis of the joints, the ascending parietal convolution presented successive swellings and strangulation.

Is genius a neurosis? Such is the question which Kiernan, of Chicago,⁹⁸_{Jan.} asks, in reviewing the opinions of writers from the most ancient times. Ch. Mercier⁴⁷_{Nov.} examined the nervous system in infancy, and concludes that it is more easily affected than in the adult, but that it has also a greater tendency to return to the normal state.

James Goodhart,⁶_{Jan., Feb.} discusses, in the Harveian lectures, the common neuroses, or the neurotic element in disease and its rational treatment, and combats the abuse of drugs and medicine. Wharton Sinkler²⁴²_{May} studies the conditions in which rest should be the treatment adopted. Hammond²⁴²_{Jan.} and, after him, Talamon, of Paris,³¹_{Mar. 3} advises the use, already so wide-spread, of the bicycle for nervous patients. It is now recommended in a number of atrophic paralyses of medullary or neurotic origin; also in nervous conditions, such as neurasthenia, hypochondria, and hysteria, which are always accompanied by mental depression.

MENTAL DISEASES.

By GEORGE H. ROHÉ, M.D.,

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AMONG the more notable literary events in the specialty of psychiatry during the year 1892 are the appearance of the fifth edition of Griesinger's classical treatise²⁰¹⁶; a text-book on "Mental Diseases," by Theodor Kirchhoff²⁰¹⁷; Westphal's "Collected Essays"²⁰¹⁸; a smaller text-book, by Friedrich Scholz²⁰¹⁹; Pitres's "Clinical Lectures on Hysteria," in two volumes, with plates²⁰²⁰; and a number of smaller monographs.

GENERAL QUESTIONS IN PSYCHIATRY.

P. J. Möbius^{68 July} criticises the present classification of mental and nervous diseases, claiming that the etiological classification is the only ideal one. Unhappily, as the author admits, we are at present unable to adopt this principle of classification, because our knowledge of the etiology of mental diseases is so limited. However, he would make an attempt at it, in order to get away from our illogical confusion. The schema on next page is offered as an advance in the right direction.

The author admits that in many respects such a classification would be difficult for the student, but claims that if once comprehended it would bring clearness into many of the dubious places of psychiatry and neurology.

C. G. Chaddock, of Michigan,^{98 Apr.} also offers a new classification of insanity. He divides cerebral disease into functional, organic, and degenerative. Functional cerebral disease would include all cases in which no signs of organic change in the nervous system and no evidence of anthropological degeneracy could be found; organic, such in which permanent or progressive structural alterations of cerebral tissue are present; and degenerative, such as present evidences of anthropological degeneracy. The classification may be regarded as convenient and, perhaps, scientifically

		<i>Examples.</i>	
A. EXOGENOUS DISEASES.	1. Due to Poisons.	(a) Toxins. (a, a) Especial Infections. (b, b) Diseases Consequent upon Infection.	Tuberculosis of the nervous system (meningitis, tumor, neuritis, psychosis tuberculosa, etc.). Syphilis of nervous system (meningitis, gummata). Pyæmic conditions (purulent meningitis and abscess). Puerperal diseases. Acute poliomyelitis. Tetanus. Chorea Sydenhamii. Diphtheritic and similar paralyses. Tabes and general paralysis.
	2. Due to Mechanical Influence.	(b) Poisons in a Limited Sense. Alcoholism. Saturnism.	
	3. Due to Excessive Irritation.	Hæmorrhage and obliteration of vessels. Traumatism in limited sense. Tumors.	
	4. Unclassified Affections.	Neurasthenia. Occupation neuroses.	
		<i>Degrees of Degeneration.</i>	
B. ENDOGENOUS DISEASES.	Instability.		Hysteria and other neuroses. Melancholia. Mania. Paranoia.
	Imbecility		Intermittent forms. Degenerative insanity in a limited sense. Primary dementia.
			Dystrophia musculi progressiva. Myotonia. Friedreich's disease, etc.
	Idiocy.		

* Collections of symptoms.

correct. The only difficulty is that it is not practicable; for, at present, we do not know which really are functional, organic, or degenerative cerebral diseases, with few exceptions.

H. C. Wood, of Philadelphia,⁴⁵¹ July discusses the relation of neuropathic insanity to crime. Given an individual who is hereditarily burdened with a degenerated nervous system, how shall the law regard him if he commit a crime? Shall he be punished like the ordinary criminal? Can he, in view of his ancestry and environment, help his criminal instincts and tendencies? If not, by what right does society assume to punish him for his criminal acts? Wood has no sentimental scruples in the matter. While insisting that the neuropathic criminal is a criminal *malgré lui*, yet society has the right to protect itself against him,—even, if necessary, to the extent of putting him to death by judicial process.

Sentimental psychologists may disagree with this, but the common sense of the people is with Wood.

Chaslin³_{Aug. 10} reports a case of acute mental confusion (acute confusional insanity), and concludes as follows: "There is a form of mental disorder, usually acute, which is neither mania nor melancholia, which may be attributed to a rapid depression (*épuisement*) of the nerve-centres,—frequently due, according to recent authors, to infection or auto-intoxication,—and which may be defined as 'degenerescence.' It is an intermediary form between functional psychoses and insanities with well-marked and profound lesions. It assumes often the character of a true disease by the somatic phenomena—denutrition, fever, etc.—which accompany it. From the psychical point of view, it is characterized by confusion of ideas consequent upon enfeeblement and inco-ordination of the processes of association of ideas, perception, and personal apperception. It may or may not be accompanied by hallucinations. There may be motor agitation, depression, or stupor. The emotional tone is often indifferent, although it may be changeable. The disorder has a great analogy with the delirium of chronic intoxication. It seems to merit the name of mental confusion, by which it has been described in France, and, for a more precise distinction, the adjective 'primitive' is proposed."

Bearing upon the same topic is the paper of John Ferguson, of Toronto,⁹⁸_{July} upon "the insanity following exhaustion," under which he classes cases of post-operative, post-febrile, puerperal, and toxic insanities. Whatever may be regarded as the pathology of this class of cases, many careful clinical observers are coming around to the view of H. C. Wood, that the fundamental state in all these cases is an altered cerebral nutrition, principally defective nutrition. To me it seems that no better name has yet been proposed than "confusional insanity," for few of the cases can be properly included among the old clinical subdivisions of mania, melancholia, or dementia.

Richter, of Dalldorf,²⁰_{B. 128; Aug.}⁶⁸ has made plaster casts of the interior of two hundred and forty-two skulls of individuals dead of the most various forms of insanity. He observes that the external conformation of the skull does not necessarily correspond with its internal form. The external deviations from the normal are corrected by the conformation of the internal surface. During its

development the brain acts in a compensatory manner upon the inner surface of the skull. The characteristic external differences between the male and female skull are not found in the casts of the internal surface. The left occipital lobe was found larger than the right in the proportion of 10 to 1. Richter explains this by the stronger arterial pulsation on the left side, in consequence of the more direct course of the carotid. The basis cranii was rarely found deformed.

J. G. Kiernan⁹⁸_{Apr.} has a readable paper upon "Art in the Insane." Several cases of paranoia are referred to, and the characteristics of their drawing and painting commented upon. It is well known that paranoiacs often make pictures, but unless previously trained in art their productions cannot be claimed as artistic. Noyes's case, to which reference is made, had enjoyed the advantage of the personal instruction of one of the most famous of modern French painters. His art was colored by his insanity, —not produced by it. Turner, Blake, Haydon, Flaxman, Landseer, and Romney are given as examples; but, surely, these might be considered as insane artists rather than artistic madmen. It seems to me the tendency to adduce all exceptional talent as an evidence of insanity is being carried a little too far. Soon it will be dangerous to show uncommon skill in any occupation for fear of being pronounced a dangerous lunatic. However, the theory that genius is a psychosis closely allied to insanity, if not insanity itself, is a great comfort to us commonplace, who suit our actions to the conventionalities of society, and who are as far beyond the suspicion of genius as of insanity.

Tonnini²⁶²¹_{No. 2, '91; Feb.}⁶⁸ divides hallucinations into degenerative, acquired, and psychical. Hallucinations are nothing more than illusions. Both are simply sensory disturbances of varying degrees of intensity, which often have peripheral nervous alterations as their basis. Degenerative hallucinations must be regarded as hereditary. They are chronic, distinct, stereotyped hallucinations, generally confined to one sense, without disturbance of the organ concerned. The acquired hallucinations are often associated with peripheral disturbances, and they originate from toxic, febrile, neoplastic, vasomotor, or inflammatory changes of the sensory cortex. Psychical hallucinations are such as depend upon memory or vivid ideas. Internal voices belong to this class.

B. Ball ³¹_{Dec. 3, '91} groups the characters of imperative conceptions or morbid impulses under nine heads: 1. Lucidness; the victim of imperative conceptions is conscious that his delusions, apprehensions, and thoughts are morbid. 2. The appearance of the impulse is sudden and without prodromes. It is not only mental, but physical and material in character. 3. The impulses are paroxysmal. In most cases they are more frequent and intense in summer. 4. The periods of remission may be extended, but the attacks usually recur. A prognosis of complete cure should be hazarded with great reserve. 5. The delusions do not change into others and the patients do not pass into dementia. 6. When the impelled act is accomplished, the individual feels a great satisfaction. The momentary satisfaction is an evidence of a crisis; it proves the morbid character of the entire range of symptoms. 7. The physical symptoms always present,—the headache, distress, dyspnœa, cold sweat, vertigo,—termed by the Germans pneumogastric symptoms, show that the malady has a physical, as well as moral, basis. 8. In most cases congestions are present, and in cases where treatment is of any avail anti-congestive or anti-anæmic remedies give the best results. 9. The rôle of heredity in the causation of imperative conceptions must be recognized.

I. C. Rosse, of Washington, ²⁴²_{Mar.} reports, under the title "Triple Personality," several cases of visual and aural hallucinations,—in two cases accompanied by delusions. The only peculiarity of the hallucinations was their threefold character. C. Wernicke, of Breslau, ⁶⁹_{June '93} discusses, in an interesting paper, illustrated with cases, the occurrence of partial insanity, and declares that there are cases in which single delusions—"fixed ideas"—occur without involvement of the entire psychical personality of the individual. [The cases do not appear to me conclusive.—ED.]

L. Baret ¹⁵³_{Sept. 5} describes a form of insanity not uncommon among Japanese women. It is known to the natives as *kitsûne tsûki*, or "possessed by foxes." The superstition is current in Japan that foxes, badgers, cats, and other animals may assume human form. In some cases the animals gain entrance into the body of a living person, and these become possessed. The ways of entrance are the natural orifices of the body, the nipple, but, above all, under the finger-nails. The patients are compelled by the possessing animal to speak in a voice supposed to be like that of the animal.

They are conscious of the words spoken, but cannot use others. It is probable that this affection is simply a form of hysteria, depending upon suggestion, as already intimated by Baelz.

E. Goodall¹⁶⁶_{Apr.} has made some acute observations upon the disease called by Kahlbaum "katatonia." The conclusion reached by him is, that the individuality of the disease is not definitely established.

Hasime Sakaki gives²⁹⁵_{B.48,H.1,2;} ¹⁶⁶_{July} some statistics from the asylum at Tokio. The number of patients treated during the years 1888 and 1889 was 423 males and 238 females, = 661. Of these, there were discharged, recovered, 121 males, 55 females, = 176. Improvement was observed in 187 males and 115 females. There died, 74 males, 42 females, = 116. The cases of general paralysis were 2 per cent. of the whole. The disease called kakke (beriberi), akin to multiple neuritis, is common in Japan. It appeared as a complication of insanity in 7.5 per cent. of the cases, and was a cause of 19 deaths; that is, 16.4 per cent. of the whole mortality. Of those affected in the asylum with beriberi 59.3 per cent. died. Sakaki shows that insanity in Japan is much more prevalent among married people than the unmarried. This he supports by comparing the number in his asylum to the statistics of the general population. He says it would take too long to explain the causes of this surprising result. Some of the patients admitted were taken from the Buddhist temples, for there are many people in Japan who still believe that insanity is sent as a punishment for some great sin, or that it is the effect of possession by animals, such as the fox or the dog. On this account they go to the temples to be cured by readings from the Buddhist Scriptures.

N. R. Bradner, of Philadelphia,⁶¹_{Jan.16} points out some defects in the treatment of patients in insane hospitals, but in his ardor he goes to the extreme of making some charges against public hospitals which would be difficult to substantiate. The general proposition which he seeks to maintain—*i.e.*, that private treatment of the insane is followed by better results than the treatment of this class in public hospitals—carries with it its own confutation.

M. Friedmann, of Mannheim,³⁴_{May 24,31; June 14,21} reports 4 cases of insanity in childhood. He regards the essential characteristic to be "an inherited disposition to psychical disturbance," and believes that the brain of the child is soon exhausted by continued psychi-

cal irritation,—all of which will be accepted without dissent by most observers. Moreau de Tours^{1015 996}_{Dec., '91; Feb. 10} considers the prognosis of insanity or neuroses in childhood as on the whole favorable if there is no neuropathic ancestry. If, however, the child shows evidences of psychopathic heredity, the prognosis is bad. In a general way, this rule may furnish a guide to the physician.

T. H. Kellogg, of Flushing, New York,¹_{Aug. 6} considers it probable that a considerable proportion of mental disorders have a toxic origin. In alcoholic, saturnine, and some other forms of poisoning the dependence of the mental disturbance upon the poison is recognized. The author contends, however, that certain auto-intoxications with ptomaines are probable causes of insanity. The toxic albumoses have been found in the urine in cases of insanity. These autogenous poisons may enter the circulation, and act directly upon the central nervous centres with sufficient toxic force to produce mental disturbance.

Gonzales^{686 866}_{Nov., '91; June} has examined over 36,000 clinical histories in the archives of the Manicomio of Milan, with the view of determining whether there is such a form as traumatic insanity, or whether, as is held by Oppenheim, the psychic disturbances following traumatism only exceptionally present characters of a special psychosis in the stricter sense of the term. He found 23 females, 6 still living, and 102 men, 23 of whom were still under treatment. In 28 cases there was an heredity; in 97, none. The prevalent forms of injuries were falls on the head, or simply a fall, kicks from horses, and blows. In both sexes the consequences were epilepsy, melancholia, dementia, mania, imbecility, and moral insanity. The psychic phenomena appeared in some cases a few days after the injury, and in others their first appearance varied from a few months to a few years. Hallucinations of sight and hearing were not infrequent, and a change of character and disposition was one of the most constant features. Persecutory delusions were generally met with. It was noted that the epileptic form of insanity appears some little time after the injury; that at present the injuries of the head with psychic symptoms following are more frequent than in the past; that the male sex is rather more exposed to this form than the female, but that in the latter the mental symptoms appear more quickly; and finally, that traumatic insanity may be accepted in the same sense as we speak

of pellagrous, alcoholic, or syphilitic insanity. Taking into account that trephining is not the most serious operation in itself, the author hopes that we may yet find some means in surgery of meeting the disorder, especially in its epileptic form. Frigerio,⁸⁵⁶ on the other hand, in a communication on the psychoses following traumatism, holds that there is nothing in the clinical symptoms, the progress, or the pathological anatomy of the cases to justify the recognition of any special form of insanity due to traumatism. As regards surgical therapeutics in these cases, he thinks it of doubtful advantage in asylums, as the cases usually come too late to be treated with any prospect of success.

Jul. Wagner,³⁹⁵¹³_{B.10, H.2,3; July 15} calls attention to the relations of neuritis to acute insanity. In psychoses after febrile diseases neuritic symptoms have been observed, as well as psychical disturbances, in connection with neuritides. He raises the question whether, in some cases, psychoses may not be due to auto-intoxication from absorption of poisons from the intestinal canal? In the urine of insane persons poisons have been found which are present in auto-intoxication. Especially in hallucinatory confusional insanity a poisonous action may be suspected.

Post-febrile insanity is discussed by H. M. Hurd, of Baltimore.²⁷⁸_{July} He refers to three classes of cases, and reports illustrative instances. The classes are: (1) those developing from shock, under which he includes cases of confusional insanity, due to surgical operations, childbirth, the puerperal condition, etc.; (2) those developing from specific poisons, comprising the delirium of fevers, pneumonia, uræmic poisoning, influenza, multiple neuritis, the delirium of iodoform, salicylic-acid, and chronic alcoholic poisoning, and the delirium of puerperal fever; (3) insanity developing from anæmia and nervous exhaustion. This arises secondary to fever, and is to be regarded as the expression of an exhausted physical state. V. Péchère, of Brussels,⁸⁶⁸_{May 14} reports two cases of post-febrile insanity, one following erysipelas and the other influenza. The author adds quite a complete bibliography.

Krafft-Ebing,³⁹⁵¹³_{B.10; July 15} discusses the relations of menstruation to mental disturbances. In some individuals of psychopathic ancestry mental disturbances may occur during the menstrual period alone, while in others the insane manifestations are more pronounced at the time of the monthly flow. He reports a case

where an imbecile woman, who had been compelled to marry a much older man, strangled the latter. Arrested for the murder, she confessed the act without manifesting remorse. A physical examination revealed infantile uterus, with slight inflammation of the vaginal entrance. Other evidences of insanity were present at the menstrual epochs. Ball¹⁰¹⁵_{Feb.;}²⁴_{Mar.20} describes menstrual insanity,—a form of mental alienation due to the influence of menstruation upon a nervous organization. A number of well-observed cases are referred to, showing the intimate relation between menstruation and insanity. He regards the prognosis as favorable. The treatment resolves itself into the use of general and ovarian sedatives, especially the bromides.

G. H. Rohé, of Catonsville, Md.,⁶¹_{Sept.24} has inquired into the relations existing between pelvic disease and psychical disturbances in women. He points out the frequency with which bodily conditions influence mental states. Thus, a torpid condition of the intestines, Bright's disease, putrefactive processes in the intestinal canal, etc., might give rise to melancholia and other disorders of the mental functions. It is not irrational to suppose, likewise, that diseases of the female sexual apparatus would have a not inconsiderable influence in the production or perpetuation of mental disorders. As a contribution to the knowledge of the subject, the following report was submitted: In a hospital containing 200 insane women, 35 were subjected to vaginal examination, and 26 found with evidences of pelvic diseases. In 18 of these the uterine appendages were removed, with the following results: 16 recovered from the operation and 2 died. Of the 16 recovered, 3 have been discharged from the hospital completely restored, both physically and mentally; in 10 considerable improvement followed the operation in both physical and mental conditions, and in 3 the operation was of too recent a date to allow any definite expression of opinion. The mental disorder present in the 18 cases was melancholia in 6 cases, simple mania in 1, puerperal mania in 4, hysterical mania in 1, periodic mania in 2, hystero-epilepsy with mania in 1, and epilepsy with mania in 3. The author, basing his opinion upon his own experience, concludes as follows: "The facts recorded demonstrate (1) that there is a fruitful field for gynæcological work among insane women; (2) that this work is as practicable and can be pursued with as much success in an insane hospital as

elsewhere; and (3) that the results obtained not only encourage us to continue in the work, but require us, in the name of science and humanity, to give to an insane woman the same chance of relief from disease of the ovaries and uterus that a sane woman has."

J. M. Baldy, of Philadelphia, ²⁰²_{Aug.10} has inquired into the frequency of insanity following gynæcological operations, and has arrived at the following conclusions: (1) cases of serious mental derangement may occur after operations on patients without any previous personal or family histories of insanity; (2) mental disorders are no more likely to follow operations on the sexual organs than on any other part of the body; (3) such disorders occur just as frequently in men as in women; (4) operations are at times the determining cause of mental derangements where there was no previous tendency to the disease; (5) mental disturbances occurring a considerable time (months) after an operation are most probably independent of the surgical procedure; (6) the development of psychoses may follow in those cases in which the convalescence from the operation has been perfect; (7) the existence of a predisposition to psychoses should stay the surgeon's hand, except in such cases as are urgent and necessary; (8) mental derangements follow operative procedures with more frequency than is generally supposed. [These conclusions seem to me to be, in general, just; but more stress should be laid upon septic delirium as a form of post-operative psychoses.—Ed.]

G. T. Tuttle, of Somerville, Mass., ²⁷⁸_{Apr.} reports the results of the examination of the urine in 200 consecutive cases in the McLean Asylum. Albumen and casts were found in 55 cases; albumen alone in 64 cases. He collects statistics from various pathological reports of hospitals, and finds that in about 40 per cent. of autopsies in the insane kidney disease is found. He concludes as follows: 1. Chronic nephritis is sometimes the cause of mental aberration, which may be called insanity. 2. Long-continued anxiety may cause albumen, and hyaline, granular, epithelial, and blood-casts in the urine, with accompanying œdema in some cases. 3. This kidney affection may be temporary, disappearing when the cause is removed, or, the cause persisting too long, may become chronic renal disease. 4. Contrary to the opinion of many observers, disease of the kidneys is quite common among the insane.

C. Mayer^{395 68}_{B.10; Apr.} reports a case of epilepsy and insanity following persistent lead poisoning. Recovery was rapid from all the symptoms.

J. Wigglesworth, of Liverpool,²_{July 16} reports two cases of maniacal insanity resulting from the inhalation of sulphuretted hydrogen-gas.

Reynaud, of St. Etienne,²²⁸_{Apr.15} calls attention to the increase of mental diseases consequent upon the epidemic of influenza. In 1891 and the first quarter of 1892 insanity and suicide both increased in a very marked degree. The increase was coincident with the prevalence of *la grippe*, and doubtless dependent upon it. He gives a tabular statement, showing the increase in insanity and suicide during the months of November, December, January, and February, 1891-1892, as compared with the corresponding months for the eight preceding years:—

YEARS.	Cases of Insanity.	Cases of Suicide.	YEARS.	Cases of Insanity.	Cases of Suicide.
1883-84.	39	16	1888-89.	54	20
1884-85.	35	13	1889-90.	46	15
1885-86.	52	19	1890-91.	47	15
1886-87.	39	15	1891-92.	73	25
1887-88.	56	19			

One case is reported in detail.

Kirn^{295 68}_{B.48; Apr.} has collected the cases of insanity following influenza. Fifty-four cases have been reported. About one-fourth may be classed among the cases of febrile delirium. They begin as acute hallucinatory confusion, contemporaneous with the fever, and disappear several weeks after the latter has subsided. The post-febrile cases may be divided into three classes. 1. Asthenic psychoses with hallucinations and delusions, sometimes exaltative, at others depressive. 2. Melancholias, from simple neurasthenic or hypochondriac disturbance to profound stuporose conditions. 3. The manias. The prognosis is good. H. Sakaki²⁰⁰_{Jan.23} reports seven and Morton Prince⁹⁹_{Mar.10} two cases of insanity following influenza. Prince's cases both died.

COLLATERAL MORBID CONDITIONS AND SYMPTOMS IN INSANITY.

J. Turner¹⁶⁶_{Jan., Apr.} has found, in a considerable number of insane women, asymmetrical conditions of bilaterally-associated muscles, especially of the face, resulting in modifications of the natural ex-

pression. The author's language is not remarkable for the quality described by Matthew Arnold as "lucidity," but as his observations are interesting they deserve quotation. His explanatory remarks are as follow :—

"The entire nervous system is generally looked upon as a purely sensori-motor apparatus. It is a highly-developed reflex mechanism ; and, consequently, any cause which lowers its nutrition or materially injures any part must be followed by paralysis.

"Should the higher levels of the nervous system be damaged, then, besides paralysis of some movements, we get overaction of others on the same side.

"With the heaping up of centres in the evolution of the nervous system, the higher centres seem to have a controlling or inhibitory action over the lower; but perhaps they, more correctly speaking, protect, to a certain extent, the lower ones from discharging in response to every sensory stimulus. And when by disease, or any other means, the higher levels are destroyed, the lower exhibit a tendency to discharge with less powerful stimuli, or, as Hughlings Jackson says, they are 'let go.' Whilst fully recognizing that there are other and more active influences by which discharges from one part may interfere with or inhibit discharges from others, we may suppose this protecting influence to be somewhat as follows :—

"The lines of intercommunication between cells or centres become vastly more complex and numerous the higher we ascend in the nervous hierarchy ; of this there can be no doubt. Given a definite stimulus, and accepting the doctrine of Mercier, that a discharge in any cell tends to spread in all directions, conveyed by preference along definite channels (nerve-fibres), the amount or force of the discharge being in proportion to the diameter of the channel along which it flows, then, unless the stimulus was able to provoke a discharge of sufficient intensity to overcome the inertia of the innumerable molecules encountered in its diverse passages toward the periphery—it is quite conceivable that it should not pass eventually to the muscles to give objective evidence of its existence in the shape of movement—the force would be spent somewhere between centre and periphery (incomplete reflex act of Hughlings Jackson). But by the destruction of higher centres we can plainly see that, in proportion to this destruction, the number

of channels along which the force is supposed to spread itself being reduced with the same stimulus, the discharge evoked is more hemmed in, less dissipated, and is, therefore, more liable to reach the periphery.

“The inhibitory nature of the action, therefore, of highest level centres consists in the fact that impressions impinging on the cells of these centres cause discharges in them, which are so dispersed through the innumerable channels of the highest level, as well as through channels conducting to lower levels, which are themselves so many fresh junctions where further dissipation of the force takes place, that even though some augmentation of force should occur *en route*, still, unless the original discharge has been of a sufficiently powerful nature to overcome all these obstacles, it does not reach the periphery to eventuate in muscular movements. But if the impression is strong enough, then the discharge it evokes will be of sufficient intensity, in spite of dispersion, for some of it to reach the lowest centres, and so react on the periphery; a condition of affairs, be it observed, diametrically opposite to that which would occur if the inhibitory action of the highest centres was of a direct nature. In this latter case the infallible result of the evolution of the nervous system would be to destroy the individual, by rendering his existence impracticable.

“The diagram on page 14 will serve to illustrate in a rough way the condition of affairs that may be supposed to exist for the production of symmetrical contraction.

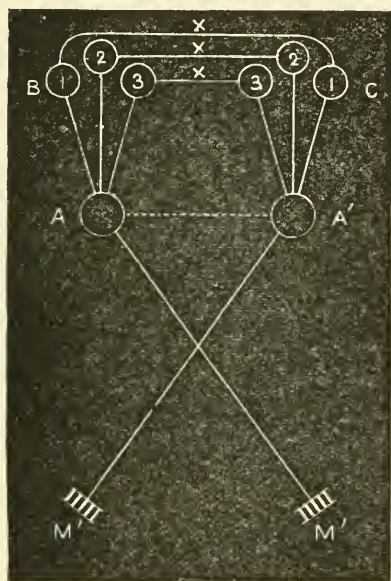
“A A' are the fundamental nerve-centres for the muscles M' M'. B 1 2 3 and C 1 2 3 are a few of the higher centres representing more special movements connected with one another probably by the callosal fibres. In the normal state of affairs the higher centres on one side are simultaneously and equally stimulated under certain conditions, and, being themselves similar, they respond by discharging and producing contractions in the muscles of the two sides M' and M' of equal intensity. But supposing one of the higher centres is destroyed on one side; then, with similar sensory impressions impinging on the two sides, as before, we should only get contraction in the muscle or muscles of the side on which the lesion is supposed to exist. Of course, it is only with the movements associated with certain emotional states, or definite sensory impressions, that the asymmetry would be produced; stimulation

of the other higher centres, or of the fundamental centres lower down, would still be capable of producing symmetrical action.

"As has been shown before, when higher centres are destroyed, the lower centres are more liable to discharge with feeble stimulation, sufficiently powerfully to produce their effects on the periphery as muscular contraction; and hence it is important to bear in mind that in some conditions of deranged nervous system where the dissolution is partial and more confined to one side (the morbid process itself possibly acting as stimulus), we get contraction of

the muscles on the side *opposite* to that in which the lesion is situated. These contractions are, however, more continual than are the one-sided contractions called up by transient stimulation of the higher motor centres whose discharge accompanies certain emotional or intellectual states, and which, as before remarked, appear on the *same* side as that in which the lesion exists, be it functional or organic."

In 411 insane females (recent cases), excluding general paralytics, inequality of pupils was found in 25 per cent. In 396 chronic cases, except general paralytics, 35 per cent. had in-



VISUAL ASYMMETRICAL CONDITIONS.
(*Journal of Mental Science.*)

equality of pupils. In 306 recent cases the tongue, when protruded, was deflected from the middle line in 24 per cent. In a number of cases, illustrated in the accompanying plate, the muscles of expression were more or less paralyzed on one side. The author thinks, also, that the slouching attitude and shambling gait of demented and imbeciles are the effects of paralysis.

Description of Plate.—Fig. 1. Asymmetry of expression in the lower part of the face in the case of an imbecile. Fig. 2. A case of acute melancholia with visceral delusions. Fig. 3. Asymmetry in the forehead, assumed with certain emotional states, in a young phthisical woman. Fig. 4. Another instance of asymmetry in the forehead in a case of melancholia. Fig. 5. A case of acute melancholia. Fig. 6. Asymmetry of the forehead in a case of chronic insanity.



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.

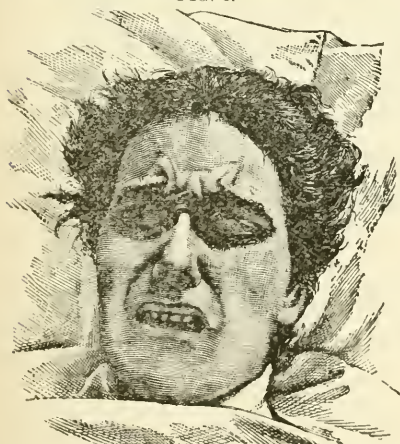


FIG. 5.



FIG. 6.

ASYMMETRICAL CONDITIONS MET WITH IN THE FACES OF THE INSANE.
(*Journal of Mental Science.*)

J. Ramadier and P. Sérieux⁴⁵²_{Sept., Oct., '91} describe a peculiar malformation of the chest, illustrated in the accompanying plates, and known, after Ebstein, as "funnel-breast" (*Trichterbrust—Thorax en entonnoir*). Eleven cases are collected from the literature and five new cases reported. The authors claim that "funnel-breast" is one sign of physical degeneration. In ten of the reported cases there were hereditary psychopathic conditions (idiocy, epilepsy, imbecility, delusional insanity). In only one of the cases was there slight scoliosis. No evidence of rachitis. In the other cases the history was incomplete. In one of the cases there was also malformation of the index finger of each hand (see illustration).

The alterations found in the pia mater in various forms of insanity are thus described by Greco.⁵⁹¹_{No. 17, '91}⁹⁹_{July 7} 1. In general



MALFORMATIONS OF THE INDEX FINGERS.
(*Nouvelle Iconographie de la Salpêtrière.*)

paralysis we find peri-arteritis of the smallest vessels of the pia, especially in the layer nearest the cortex; in general, the signs of chronic fibrous leptomenigitis. At times, in the smallest vessels of this region, besides peri-arteritis, we find obliterating endo-arteritis, and, in the medium-sized vessels, thickening and fatty degeneration of the muscular coat. 2. The regularity with which we find peri-arteritis of the smallest vessels in general paralysis, even in patients who die early, when the brain-substance shows no sign of sclerosis or atrophy, goes to support the views of Meyer, Rumpf, and Mendel, that the vascular lesions, as a result of persistent hyperæmia, represent the first histological changes in the brain of the general paralytic, and that the changes in the cells and neuroglia are secondary. 3. In pellagrous insanity we find the pia diffusely opaque, with slight increase of connective tissue in its structure, often with slight nuclear infiltration, either diffuse or



BURK & McFETRIDGE, LITH. PHILA.

Funnel-shaped Thorax. (Ramadier and Sérieux).

Nouvelle Iconographie de la Salpêtrière.



BURK & M^{rs} FETRIDGE, LITH. PHIL^a

Funnel-shaped Thorax. (Ramadier and Sérieux).

Nouvelle Iconographie de la Salpêtrière.

about the minute vessels of the pia or brain-substance. 4. In some cases of pellagrous typhoid, and especially in acute delirium, we find signs of recent hyperæmia in the pia. 5. In other forms of insanity (particularly periodic, epileptic, terminal dementia, etc.) the pia is slightly thickened, with rigid and tortuous vessel-walls. Similar changes are seen in sane persons of advanced age or with marasmus. Very rarely the thickening is great and the brain-substance atrophic and indurated, and the lateral ventricles are dilated and full of serous fluid. 6. In the insane all forms of thickening of the pia begin ordinarily over the central convolutions. In the 48 cases in which thickening of the pia was present 21 were cases of general paralysis; 9, of pellagrous insanity; 6, of terminal dementia; 4, of acute delirium; and 1 each of periodic insanity, relapsing mania, relapsing lypemania, epileptic imbecility, epileptic insanity, melancholic stupor, senile dementia, and dementia gitata.

Christian, of Paris, ³⁶¹ ⁹⁹⁶ reports a case of persistent hallucinations of sight in a dement, caused and maintained by a tumor of the pituitary gland not suspected during life. The growth compressed the optic nerves. During five years that the patient was under observation no suspicion was entertained that there was any gross lesion of the brain. During the latter months of the patient's life complaints of headache and loss of vision were made; but the latter symptom was attributed to the patient's advanced age. Raymond, ³ ^{June 29} reports a case of dementia in an hereditary epileptic, in whom was found, post-mortem, a large gliomatous tumor of the right frontal lobe. The epileptic attacks, beginning in infancy, were limited to the head and upper extremities. Immediately preceding the dementia there had been a maniacal outbreak, with illusions and hallucinations of vision.

E. Toulouse, ¹⁰⁰ ² records a case, with an antecedent alcoholic history, in which all the symptoms of a circumscribed lesion of the right cerebral hemisphere, including well-marked Jacksonian epilepsy, were present, and in which there were well-marked unilateral hallucinations of hearing, always referred to the left ear. The voice which the patient heard made accusations against her, insulted her, and so on. There was some evidence of hallucinations of sight, to some extent unilateral, but this was less definite. There was sclerosis of the tympanum on both sides, more pro-

nounced on the right. The author has collected 39 cases of unilateral hallucinations that have been recorded. In 26 of these, hearing was affected; in 7, sight; in 4, sight and hearing; in 1, sight and touch; and in 1, touch alone. He is not aware of any records of unilateral hallucinations of smell or taste. Of the 26 cases in which hearing was affected, in 23 it was on one side alone; in 2, it was bilateral, but of different characters on the two sides; and in 1, it was sometimes on one side, sometimes on the other, but never on the two sides simultaneously. Of the 7 cases in which sight was affected, once the affection was bilateral and of different characters on the two sides, and once it was unilateral, but had affected consecutively the left and right sides. He arranges the conditions under which these hallucinations are met with in three classes: those which coincide with a peripheral lesion of the organ for that particular sense; those occurring in mental conditions, such as melancholic delirium and the delirium of persecution, or a toxic delirium, such as alcoholism; and those which are associated with a circumscribed lesion of the brain,—in which latter category he places his own case,—excluding the condition of the ears as the etiological factor, owing to this being bilateral and more marked on the right side, while the hallucinations were left-sided. Where the condition depends on a peripheral lesion the diagnosis is easy, and the diagnosis of a central one must, he considers, be based on the absence of such peripheral lesion, together with the presence of motor and sensory affections. The recorded evidence points to the cortical centre for the particular sense as the seat of the lesion in these central cases. The symptom is considered of great clinical value, as it leads to precise diagnosis, establishes a prognosis, and indicates in certain cases a curative treatment.

Ball, ²¹_{July 24} in a clinical lecture, calls attention to the frequency of mental derangement in chorea. The lighter forms of insanity are quite frequent, while the graver varieties are rare. Severe cases of choreic mania may terminate fatally, or pass into melancholia or stupor, from which recovery is usual, or into permanent dementia. The mental disturbance usually disappears with the cure of the motor symptoms.

Séglas, of Paris, ¹⁶¹_{Nov. 5, 12, '91} considers the writings of the insane as a valuable diagnostic indication. The modifications of writing in

the insane may consist of variations in rapidity of writing, the use of incorrect words, of bizarre spelling, of newly-coined and meaningless words. The script may be defective and irregular, while the words, grammar, and orthography are correct. There may be differences of punctuation or accentuation. Exclamation points and italics are frequently used. Sometimes letters are formed in a curious fashion, as when a cross is made in place of an *i*. Sometimes words and phrases having no connection with the subject-matter are intercalated in the manuscript. In a general way, the writings of the insane are representative of their delusions and trains of thought. While it may be difficult to learn the mental peculiarities of an individual by asking questions requiring more or less categorical answers, if he is allowed to write without the stimulus of questioning, he is liable to write down the results of his mental activity, whether this be normal or morbid.

E. S. Reynolds, of Manchester, ⁹⁰_{Jan.} dissents from the opinion that "a caligraphist can say definitely, from the peculiar formation of individual letters, that they have been penned by a lunatic." He agrees, however, with Séglas that, while a person may appear to be entirely sane in his conversation, his letters may be full of the wildest delusions. He adds: "Just as we find certain types of insanity, mania, melancholia, and dementia, so we find distinct types of letters: the maniacal, with long, sometimes incoherent, sentences with no definite connection, the amorous proposals, the purposeless, verbose statements, often full of absurd schemes and delusions, every iota of paper covered, the envelope covered and fastened fantastically with seals and bits of string; the melancholic, with delusions of persecution or of wrong-doing, with fears of eternal damnation, and so on; and, finally, the demented, with a few incoherent scrawls with absolutely no connection between one word and another, showing marked degradation of the intellect."

J. Krypiakiewicz, of Lainz, ⁵⁷_{Mar. 27} has examined the blood in a number of cases of insanity. In cases with sexual derangements or sexual delusions there was generally a decided increase of the eosinophile cells. In the blood of cases of general paresis and consecutive dementia no alterations were discovered. In cases of melancholia, primary dementia, and general paresis there is often great diminution of red blood-corpuscles and hæmoglobin,—to such

a degree, sometimes, as to simulate pernicious anæmia. This condition may precede the mental derangement or be consecutive to it.

A. Cramer, of Eberswalde, Bavaria, ³⁴_{Feb. 9, 16} has investigated the behavior of the blood-pressure during the distress of melancholia, and arrives at the following conclusions: 1. During the distress of melancholia the blood-pressure rises. 2. A contraction occurs in extended vascular areas. 3. It is probable that the vascular contraction is an essential cause of the sense of distress.

Boctean and Klippel, ³_{Mar. 2} have made a series of observations upon the respiratory movements in the insane. In general paresis the amplitude of the respiratory movements is diminished, at other times irregular, or even intermittent. In mania the movements are increased, and much diminished or irregular in melancholia. V. Pachon, ¹⁶⁴_{Mar. 31} on the contrary, states that his researches lead him to the conclusion that there is no especial type of respiration constant among the insane, but that the increase or diminution of the respiration-rate is entirely dependent upon the clinical character of the insanity. In excitement or states of exaltation the respirations are increased; in depression, they are diminished. Mairet and Bosc, of Montpellier, ³⁶¹_{Jan.} have examined experimentally the question of toxicity of the urine in mental diseases. Injected into the veins of dogs and rabbits, it was found that the urine of cases of melancholia and mania was much more poisonous than that of healthy persons. Similar experiments with similar results have been made by de Boeck and Slosse, ⁸⁶⁸_{Nov. 20, '91}. The more intense the mental disturbance, the higher the degree of toxicity of the urine.

E. Toulouse, of Paris, ²⁴_{June 5} in analyzing and commenting upon the researches of Mairet and Bosc, argues that certain forms of acute mania and melancholia are due to nutritive derangements,—in other words, are not mental diseases, but symptoms of an autogenous poisoning resulting, perhaps, from primarily digestive disturbances. In the treatment of such cases this view should be taken into account. In fact, lavage of the stomach and intestinal disinfection have given good results in these cases.

Ruata, of Turin, ⁶⁸_{Mar.} reports two cases of insanity (mania) in the secondary stage of syphilis promptly cured by antisiphilitic treatment.

SEXUAL INSANITY.

B. Ball,^{1015 24}_{June; June 26} in a lecture on morbid sexual excitement, gives a summary of his views on sexual insanity familiar to the readers of his previous work.²⁰²³ Nymphomania, according to Ball, is dependent upon some morbid physical condition of the generative organs, requiring treatment addressed primarily to the latter. Krafft-Ebing^{395 13}_{B.10; July 15} finds delusions of jealousy of husband or wife, especially in inebriates. In 80 per cent. of male alcoholics who still have sexual relations delusions of jealousy are present. Even though the inebriety is cured, the delusions remain. He also relates a case of senile dementia in which this delusion was present. [I have had under my care, during the past year, a similar case, in which the delusion was combined with one involving the transfer of the patient's property to the supposed paramour.—Ed.]

Sexual perversion has been much written about during the year. The case of Alice Mitchell, which created so much newspaper notoriety in this country, directed prominent attention to this phase of mental derangement. The details of the case are so well known, through the daily press, that its main features only need be recalled here. Briefly, they are as follow: Alice Mitchell, a young woman of fair intelligence and good social standing, formed an attachment for a female companion, whom she expressed a determination to marry. Being hindered in the accomplishment of this absurd design, she attacked this girl on the public street, in open day, and cut her throat. At the preliminary trial it was clearly shown, by an abundance of expert and other evidence, that the culprit was insane. Her mother had also suffered from puerperal insanity before the birth of Alice. After committing the murder, she expressed sorrow at the death of her victim, but no regret for the act. The court found Miss Mitchell insane at the time of the killing, and remanded her to an insane asylum. She was not tried for murder. A clear account of the case, with the expert opinions submitted to the court, has been published by F. L. Sim, of Memphis.²⁰²⁴

Behr²¹_{Apr. 4} considers sexual perversion a symptom that may accompany any neurosis or psychosis, and should, therefore, not be considered as a distinct affection, but as a part of the general symptomatology of insanity. (This seems a rational view.) Hoeningner³⁴_{July 12} reports two cases. One was a theological student,

26 years of age, formerly a masturbator, who became sexually excited at sight of women's fine foot-wear. Whenever he could obtain a woman's shoes he derived great satisfaction by masturbating while looking at the shoes. The other case was one in which the sexual perversion consisted in masturbating while picturing to himself a handsome, well-built young man, who performed the passive part in the act. The patient had, however, never had relations with another man. He was cured in 120 hypnotic *séances*.

A. Peyer¹¹⁷_{July} reports two cases. One, a man 52 years old, had erections and, finally, emissions whenever he looked at well-manicured finger-nails or witnessed the romping of school-children. The other was a young neurasthenic, who showed a peculiar disposition to tease and torture little animals, such as ants, beetles, etc. Their frightened running to and fro brought on erection with orgasm; finally, emissions without erections. In both the normal sexual inclination had disappeared, but in the latter appropriate treatment resulted in complete cure.

W. A. Hammond⁸¹_{Apr.} points out the frequency with which masturbation is present in hebephrenia, and strongly urges early attention in these cases. He gives a more encouraging prognosis in the affection than other authorities. R. J. Preston⁸¹_{June} refers to the frequency of masturbation as a cause of insanity. He quotes, but without approval, the experience of Haynes, who destroyed the sexual appetite in three individuals by exsecting about half an inch of the spermatic duct.

GENERAL PARESIS.

J. Obersteiner, of Vienna, corresponding editor,⁵⁷_{Jan 24} discusses the relations of syphilis to general paresis, and arrives at the conclusion that syphilis is a direct factor in the development of general paresis; and that, hence, general paresis may be regarded as one of the later manifestations of syphilis. In 29 out of 194 cases of general paresis hallucinations were observed. J. Levison, of Copenhagen, corresponding editor,⁶⁷³_{Sept.} gives statistics of the relations between general paresis and syphilis in Denmark. Geill found syphilis in general paretics in 78 per cent., Jespersen in 77 per cent., Rohrnell in 76.8 per cent., Jacobson and Pontoppidan in 52 per cent., and Lange in 51 per cent. H. M. Bannister, of

Kaukakee, Illinois, ²⁴²_{Dec., '91} has studied two hundred and thirty-four cases of general paresis with special reference to its etiology. He found, in the great majority of cases, syphilis present as an antecedent. In the course of an elaborate article upon syphilis and general paresis, E. Régis ²⁵_{Aug.} has collected 14 cases of general paresis occurring in persons under 20 years of age. Nine were males and 5 females. The first was reported, in 1877, by Clouston, and the last, in 1892, by Charcot and Dutil. ⁹⁴_{Mar.} In 6 cases there was hereditary syphilis, in 1 acquired syphilis during infancy (from a nurse), and in 2 syphilis was suspected.

Azoulay and Regnault ⁵⁵_{Sept. 3} describe a form of automatism among general paretics. If the arms of the patient are raised without speaking to him, they are maintained in this position for a period varying from two to ten minutes. In some cases the phenomenon approaches a cataleptic condition, the arms remaining elevated for perhaps a quarter of an hour and being gradually lowered. The symptom is attributed to the slowed mental activity among general paretics. Kusnezow ⁵⁸⁶_{No. 10, '91} ⁶⁸_{Apr.} reports a case of well-marked general paresis completely cured, the cure being maintained ten years after the patient's discharge from the hospital. Poljakow, of Charkow, ⁸⁶⁷_{'91} ⁶⁸_{Apr.} reports a case of general paresis beginning with delusions of persecution, illusions, and hallucinations.

Surgical Treatment.—The profession is indebted to Harrison Cripps, T. Claye Shaw, and Batty Tuke, in England, for their attempts to popularize the surgical treatment of general paresis by trephining. Blumer, of Utica, N. Y., ²⁷⁸_{Oct.} in a review of this subject, states that the propriety of such surgical interference was suggested by the hope of relieving intra-cranial pressure by draining off the accumulated fluid and by, perhaps, affording a modified system of nutrition for the brain and another channel for the elimination of waste products. Assuming, as we have a right to do, that many of the secondary symptoms of general paresis are due to water-logging of the brain, and that this continued pressure results in atrophy of the cells, it is not unreasonable to look for improvement by tapping. As a matter of fact, such was the immediate result in cases reported by Cripps, Shaw (see ANNUAL, 1890, vol. ii, D-27), and Tuke; but, as yet, no satisfactory means have been devised, or at least carried out, for preventing the re-accumulation of the fluid. Cripps's theory is, that by removing the membranes and placing the

skin in direct apposition with the brain-substance, we introduce a new lymphatic arrangement by which the fluid can be absorbed. He assumed, therefore, that the larger the portion of bone removed the better, and proposed by removing the intermediate bone to increase the amount of skin brought into direct contact with the brain-substance. Unfortunately, the post-mortem findings do not support this theory, for the trephine-holes appear filled up by a rough, fibrous membrane, showing that, as regards pressure, the original conditions of resistance had been restored. Batty Tuke has suggested the maintenance of drainage, so as to allow the squeezed cells a chance of regaining their proportions, and thus remove the original source of hypersecretion. As it is considered impossible to do this by operation at the base of the skull, Tuke proposes laminectomy of the second or third lumbar vertebra, puncture of the arachno-pia, as suggested by John Duncan, and the insertion of horse-hair. Duncan has performed the operation at this spot for traumatism, and had no difficulty in establishing a free flow of cerebro-spinal fluid. Although the flesh wound is deep, the arachno-pia can be easily reached. Tuke considers the operation justifiable in early cases with symptoms of intra-cranial pressure, and expresses his intention of performing it in the first suitable case. In the case reported by C. G. Wagner, of Utica, N. Y. (ANNUAL, 1891, vol. ii, D-18), the disease was far advanced at the time of the operation and the patient was rapidly settling into a state of profound coma, yet the immediate results of the operation were satisfactory and the patient's life was, undoubtedly, prolonged nearly two months by the operation. At the autopsy it was found that the dura had reunited, and the opening in the skull made by the trephine had been bridged over by a dense, strong, fibrous membrane, and there was no evidence of any recent local inflammatory process.

HYSTERIA AND HYSTERO-EPILEPSY.

C. H. Hughes, of St Louis, ⁶¹_{Sept. 17} calls attention to the comparative frequency with which hysterical symptoms are superimposed upon cases of organic disease of the nervous system. A number of cases of structural nerve disease are referred to, which were complicated by hysteria. In these cases he thinks there is often a neuropathic ancestry, which may be considered the predisposing, as the disease itself is the determining, cause of the neurosis.

Th. Leber, of Heidelberg, ⁶⁹_{Aug. 18} reports several cases of hysteria with peripheral disturbances of the optic nerves. Ophthalmoscopically, it could be demonstrated that there was slight and rapidly-disappearing structural alteration in the nerves. After demonstrating the peripheral seat of these alterations, he ventures the opinion that the motor and sensory paralysis of hysteria may be dependent upon structural alterations in the nerve-centres.

K. Alt, of Halle, ³⁴_{Mar. 1} discusses the treatment of hysteria. He dwells upon the somatic causes of the affection in many cases, and points out that hysteria cannot be cured unless the somatic causes are removed. The symptoms often yield to hypnotic suggestion, but simple hypnotic suggestion is not alone sufficient to bring about a cure. The patient must be influenced in various ways. Baths, massage, and electricity are valuable aids.

P. Blocq ¹⁰⁰_{May 21} treats hysteria by isolating the patient, and uses hypnotism, hydrotherapy, and electricity. Among strictly medicinal remedies are bromides of camphor and ethyl, valerianates of zinc and quinine, chloral, opium, and sulphonal. In cases of great agitation monobromide of camphor, in doses of $1\frac{1}{2}$ grains (0.10 gramme) three times a day, is given.

C. C. Delprat, of Amsterdam, ⁴⁵²_{Jan., Feb.} reports a case of bilateral, hysterical, facial contraction, beautifully illustrated with photographs taken by Dr. Van Haren Noman. Spasmodic contractions on the left side began after toothache. Some months later, the right side also became affected. The patient's physician removed a carious incisor, and immediately afterward the mouth was drawn permanently to the right side, the face presenting the appearance of left facial paralysis. On close examination it was, however, discovered that the mouth was drawn to the left likewise. Other hysterical symptoms were present, and justified the diagnosis of hysteria. Electricity was employed with moderate success, and was abandoned for suggestion. The method employed was to tell the patient that the control over the muscles would be regained very gradually. She was encouraged to persevere in overcoming the contraction, and at the end of two months complete and permanent recovery was obtained.

Laguerre and Bardier ¹⁰³⁸_{Dec. 11, '91} report a case of hysteria, with hæmorrhages from the ears, eyes, and palms of the hands. The case presented first the auricular hæmorrhages, followed by weeping

of bloody tears. In the hypnotic state it was suggested to the patient that the ocular bleedings would cease, and that the bleedings would take place from the palms. A few minutes after waking from the hypnosis the bleeding actually occurred from the palmar surface. No lesion of the skin was found at the point of bleeding. Bathing with cold water arrested the bleeding.

Strümpell ¹⁰⁰⁵_{B.2, H.4} reports the case of a woman of 26 years, who was brought into the hospital suffering with "spontaneous gangrene," which had lasted nine years. Red spots appeared on the arms and legs, developing into sloughing ulcers. The limbs were covered with radiating ulcers. The patient also had hysterical convulsions. Strümpell found, in the patient's bed, a large piece of caustic soda, with which the patient had produced the ulcers. She gave as a reason that the skin itched very much. After the caustic was taken away no more ulcers appeared.

Palmer, of Würtemberg, ¹³³_{July 16} describes an epidemic of hysteria in a girls' school. Thirteen pupils, between 11 and 13 years of age, were attacked in rapid succession with deep sleep, convulsions, spastic contraction of muscles, etc. In one day nine were attacked. Investigation showed that the school was badly ventilated, with only 2.4 cubic metres of air-space to each pupil. Removal of the affected pupils, increasing the air-space of those remaining to about 3 cubic metres, with appropriate improvements in ventilation and a five-minute recess each hour, checked the progress of the epidemic, and soon showed its good effects in improvement of the general health of the remaining pupils. Those affected nearly all recovered within five months.

In commenting upon these cases, Rieger ⁶⁸_{July, Aug.} brings them—properly, I think—in relation with the phenomena of hypnotism or suggestion. He takes occasion, however, to indulge in a lot of sarcasm anent therapeutic suggestion, which is hardly justified.

Tölker, of Bremen, ¹¹⁴_{B.17;} ⁶⁷⁹_{Aug.1} reports a limited epidemic of hysterical contractures in an orphan asylum in Bremen. The cases were cured by straightening the limbs and applying a plaster-of-Paris bandage under anæsthesia.

Traumatic Hysteria.—A. Neumann, of Berlin, ³²⁶_{Mar.}; ⁶⁸ relates a case of traumatic hysteria in a man. The patient was a locomotive fireman, 38 years of age. In a collision the engineer was killed and the patient thrown from the locomotive. He was

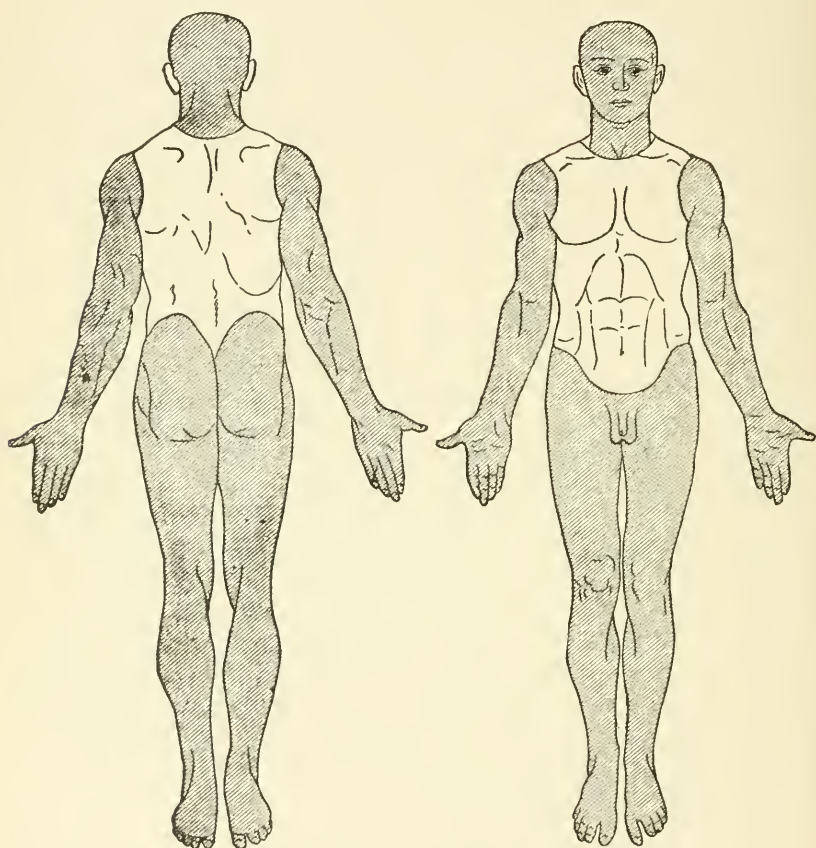
brought to the hospital in a conscious condition, but somewhat depressed. One month after the accident he was discharged from the hospital, complaining only of severe headaches and a certain feeling of weakness in the right arm. Some time afterward the patient was frightened by a passing locomotive. The symptoms of hysteria developed. He cried out at night; had spells of great anxiety; sensation of globus; became very shy and depressed. Later, an attack of stupor, with succeeding stuttering; then, for days, refusal to speak. Re-admitted to the hospital, he presented profound melancholia; motor power diminished, with spastic condition of the extremities; no paralysis or contractures; speech absolutely unintelligible. In attempts to speak only the first syllables were pronounced, the attempts to articulate resulting in clonic spasms of the lips and tongue. The stuttering was so spasmodic that expiration was prolonged almost to the production of asphyxia. On sitting down, clonic spasms, six to eight per second, caused a constant movement of the body. These spasms were most frequent when the patient was on his back. Excitement increased these movements, which were excited by pressure upon the right thigh and checked by pressure upon the right inguinal region. At other times fibrillary and fascicular jerkings were noticed in the erector trunci. Sensory disturbances consisted of partial anæsthesia, thermo-anæsthesia, and analgesia. A zone on the right thigh was hyperæsthetic. The visual area was concentrically contracted, especially for colors.

Suggestion removed the speech disturbances. Bromides, warm baths, with cold frictions and massage, followed by electricity, produced improvement, and the patient was dismissed six weeks after admission. Neumann regards the case as traumatic hysteria, with favorable prognosis.

Laveran, of Val-de-Grace, ¹⁰⁰_{Nov. 10, '91} reports the case of a soldier who was attacked by hysteria, in consequence of a stroke of lightning, which caused loss of consciousness. There was paresis of the right side, hemianæsthesia, pains in the right side (increased by fatigue), contraction of the field, and diminution of the acuity, of vision on the same side. The temperature of the right side is sometimes 3 to 4 degrees lower than on the left.

Hysteria in the Male.—Blocq and Sollier ⁷³_{Apr. 30} report a case of hysteria in the male with unusual symptoms. The usual stig-

mata of hysteria were absent. There were attacks of trembling, lasting for an hour or two. There were also attacks of "internal trembling," *i.e.*, a sensation of trembling internally, but without objective movement. Power was diminished in the lower extremities. There was no spontaneous pain complained of, but the pressure of the clothing or friction with the hands caused a sensa-



HYSTERIA IN THE MALE.
(*Le Progrès Médical.*)

tion difficult to define, which the patient described as similar to raising the skin. This sensation was not painful, but caused "enervation." The entire surface of the body, except the trunk (see figure), was subject to this sensation when touched. The tendon reflexes were exaggerated.

The patient was isolated from friends and family, given hydro-

therapy and static electricity, and was discharged cured in three weeks.

J. Séglas, of Paris, ⁹⁴_{Sept.} reports a case of hysteria, with automatism and delusions of double personality during the period of the aura preceding the attacks. The patient was a young man of 19 years. Clarke, of Bristol, ⁴⁷_{Dec., '91} adds three and Bourneville and Sollier ⁹⁴_{Nov., '91} two cases of male hysteria.

Hysteria in Children.—Jolly ⁵⁷_{Apr. 17} gives a good account of hysteria in children. Often there are obstinate localized pains, with spasms, paralysis, and anæsthesias. The paralytic phenomena may be local, or more or less generalized. Tremors are frequent, especially if traumatic influences have been causative. Disturbances in speech, vision, and hearing are often present. These phenomena sometimes disappear rapidly. In one case of hysterical deaf-mutism, in a girl of 11 years, a cure was produced by discussing an operation upon the ears in the patient's presence. Chamnier ²²_{Dec. 9, '91} considers that hysteria may be present in very young children. The simplest form shows itself by exhibitions of anger without sufficient cause and crying. A more accentuated form manifests itself by the child stiffening out its limbs, the face becoming violet and turgescient, with trembling of the whole body. Some children roll themselves on the floor and kick out, without, however, becoming unconscious. At a still higher degree the child ceases suddenly to scream, and falls into a comatose state; the body becomes rigid, and the mouth remains wide open. S. Ayres, of Pittsburgh, ⁵⁴⁶_{Aug. 15} reports a case of hysteria, in a boy of 8 years, following upon slight injuries about the face and head received in a quarrel with other boys. The symptoms were persistent headache, fainting spells, convulsions, and some incoherence. Four cases are also reported by J. W. Putnam, of Buffalo. ²⁴²_{July}

Hysterical fever has been the subject of several communications during the year. Sarbó ⁴¹_{Feb. 18}; ¹⁹_{Sept. 17} describes a case in a hysterical girl of 16 years. J. A. Estèves, of Buenos Ayres, ⁴⁵²_{Jan., Feb.} also reports a case with much detail. [Singularly, in neither of the cases does a thorough physical examination appear to have been made. That a pelvic peritonitis or salpingitis might have accounted for the pyrexia does not seem to have occurred to the authors. That, as Estèves says, "fever is one of the possible manifestations of hysteria," is a proposition which should not be accepted without

question.—Ed.] A case related by J. O. Affleck, of Edinburgh, ³⁶Aug. seems to fall in the same category. [We are not warranted in assuming the existence of “hysterical” fever until all possible somatic causes of pyrexia have been excluded.—Ed.]

A. T. Sloan ³⁶Mar. describes an interesting case of hystero-catalepsy in a school-teacher, 19 years of age. The trances lasted fifty-eight, thirty, twenty-four, and twelve hours. The seizures and recoveries were usually sudden. After her waking from the fourth seizure she became irrational and had delusions. She was then removed to an asylum, from which she was discharged recovered after two months.

A. Fournier ²⁴Feb.7 reports a case of “hystero-syphilis,” by which he means syphilis complicated with hysteria. The patient was a man of 24 years, in the secondary stage of syphilis, who was suddenly attacked by hysterical symptoms. The patient was not nervous before he contracted syphilis, and no other cause but this was present to account for his condition. Fournier states that syphilitic women often have neuropathic, hysterical, or neurasthenic symptoms, and thinks the same may be the case in men. Regnier, of Nancy, ⁴⁸¹Feb.1 reports a somewhat similar case in a soldier of 35 years, who had epileptoid symptoms in his sixteenth year, long before contracting syphilis. It was only after the syphilitic manifestations had been present, however, that the hysteria developed.

THERAPEUTICS.

The influence of intestinal disinfection on some forms of acute insanity was discussed by John Macpherson at the meeting of the British Medical Association. ²Aug.20 He uses the following treatment: In suitable cases, the stomach is washed out every day or two, and calomel, or other purgative, given to regulate the bowels; naphthalin is given in 10- to 20-grain (0.65 to 1.30 grammes) doses three times a day. The effects are excellent; sleep is induced, and the restlessness and other evil effects following the administration of narcotics are rarely observed. This treatment is especially indicated and effective in states of depression. H. Guimbail ²¹Nor.22,'91 treats the dyspepsia accompanying melancholia with antiseptics (β -naphthol), lavage of the stomach, and forced feeding with milk and eggs. In cases of obstinate vomiting fly-blisters to the epigastrium are sometimes useful.

Carlyle Johnstone^{166 Jan.; 278 Apr.} reports results of the use of sulphonal in fifty unselected cases. Between 30 and 40 grains (1.94 and 2.59 grammes) was the best average dose. After a few days the effects became more prolonged. With repeated interrupted doses a gradual improvement in the mental condition occurred, characterized by a marked diminution in the excitement, the irritability, the motor restlessness, and the wretchedness. In no case did sulphonal fail to effect at one time or another some beneficial influence on the mental state. After a few days' treatment (daily doses) the patient invariably began to sleep better. Sleep came on sooner and lasted longer, and drowsiness during the daytime set in and became more pronounced. The potency of the drug was not diminished by continuous use. Motor symptoms (languor, fatigue, and even inability to stand or walk) came on after the drug had been continued for several days. Johnstone concludes that in properly-regulated doses sulphonal is an efficient hypnotic, and, compared with other hypnotics, its action is fairly certain and constant. The sleep produced by it is natural and tranquil, and undisturbed by dreams. It has no injurious effect on the circulation, respiration, appetite, digestion, or temperature, or on the general health. It has a distinct sedative action in mental excitement or distress, and may be employed with great benefit in cases of insanity, especially such as are of a recent or acute character. M. Lewald, of Liebenburg,^{116 Dec., '91; 166 Apr.} has used duboisine sulphate in mental excitement, by hypodermatic injection, in doses of $\frac{1}{30}$ grain (0.0021 gramme). Mydriasis first appears, followed by quiet and then sleep. In one case very rapid pulse (168) and respiration (35), redness of the skin, pains, and restlessness, followed. In 75 per cent. of the cases sleep was obtained, lasting from two to seven hours. Lewald's observations, as well as those of Preininger, indicate that duboisine has no especial advantage over hyoscine. Surzycki finds that sulphonal is, on the whole, the best hypnotic in chronic neuroses. Mabile and Lallemand, of Rochelle,^{94 Sept.} report on the use of the neutral sulphate of duboisine in mental diseases. One-half a milligramme ($\frac{1}{128}$ grain) was the usual dose hypodermatically. In mania it usually produced sedation after several doses. Success was obtained in 75 per cent. of cases.

Ilberg^{295 68} has experimented upon himself and animals, and

made clinical observations upon the effect of subcutaneous injections of salt solutions in conditions of collapse, as well as in cases of sitiophobia. The collapse is promptly relieved, the salivary secretion increased, and the appetite stimulated.

Charcot and Gilles de la Tourette ⁷³_{Aug. 27} have experimented with the application of rapid vibration in certain nervous disorders. An apparatus resembling somewhat the shaping helmet of the hatters was constructed, which is caused to rapidly vibrate by a small electro-motor placed upon it. The affections in which the machine has produced relief are: insomnia, migraine, neurasthenia, and melancholiac depression. A. Cullerre, of La Roche-sur-Yon, ⁵⁵_{Aug. 27} has tried the effect of the hypodermatic injection of nervous substance, after the method of Constantin Paul, in a number of cases of mental disease. Fourteen cases were treated: in 8 there was marked increase in the appetite and nutrition, in 4 some improvement, and in 1 no effect. The effects were purely physical, however, no improvement being produced in the mental conditions. Several of the cases were melancholiacs, with sitiophobia. After a few injections, the patients began to eat without urging, and soon the appetite became ravenous and the weight rapidly increased.

H. S. Williams, of New York, ²⁷⁸_{July} treats hæmatoma auris by the application of contractile collodion. In ten to fourteen days the hæmatoma disappears, and there is no recurrence. His rules are as follow: use contractile collodion of the best quality; apply the collodion usually on the inner surface of the ear only. Exceptionally, it may be necessary to apply to the outer surface also; but this should be done cautiously, as there is some danger of producing sloughing from overpressure. Apply at intervals of fifteen minutes, till a coating of sufficient thickness to markedly contract the ear has been applied. Re-apply as often as the coating tends to peel off,—three or four times a day, if necessary. If the patient picks at the coating, restrain him with the camisole. This is only exceptionally necessary; but, in rare instances, it is absolutely essential.

- HYPNOTISM.

Binswanger ¹¹⁶_{Mar., Apr.; Aug.} ⁸⁰ reviews the whole literature of the use of hypnotism in treating the insane. Many of the reported cases, he finds, are open to criticism; in some the diagnosis was evidently

not correct or exact, and in others the reported cures were of too short duration to be of great value. But, even if all that its most enthusiastic supporters claim for hypnotism in this field be true, the total results are small, indeed, for the time and effort put forth. The patients benefited were almost, if not exclusively, victims of hysteria. Occasionally the efforts to hypnotize have produced convulsions and other active symptoms. This fact has led Binswanger to urge that hypnotism should always be used most carefully, as a dangerous remedy whose precise action cannot be predicted. He has also found that long-continued use of hypnotism renders the patient feebler in intellectual force,—mentally weary. One patient would often fall into lethargic sleep in the day-time, and also have attacks of spontaneous hypnotic sleep. The skillful use of hypnotic suggestion had a marked success in a number of cases of melancholia, chronic alcoholism, and all the varied forms of hysteria. They constitute the whole range of its usefulness so far.

Binswanger wishes that there might be many experiments in the German institutions to pursue these investigations with clear, unbiased minds, without prejudice, and equally without misjudged enthusiasm.

Sallé, of Ivry, ¹⁰¹⁵_{Apr.} and Lemoine and Joire, of Lille, ²⁴_{Sept.25} report cases of hysteria in the male cured by means of Luys's rotatory mirrors and suggestion during the induced hypnosis. In Sallé's case the patient had hysterical paralysis of the right leg, with convulsive attacks twice a day. After six *séances* the convulsive attacks ceased, another sufficed to remove the paralysis, and, two weeks afterward, the patient was discharged cured. The cure was persistent two months afterward. Lemoine and Joire report seven cases, all of which were benefited or cured by the same procedures.

L. Lojcono ¹⁰³⁹_{No.1, '91} ⁶⁸_{Apr.} reports a case of hallucinatory delirium followed by somewhat unsystematized, religious, exalted delusions. The patient requested to be hypnotized, and in two *séances* the morbid delusions were "suggested away." The cure persisted for six months.

IDIOCY AND CRETINISM.

E. Tacquet, of Paris, in a thesis, ²⁰²⁵ has examined a number of the skulls of idiots in the museum of the Bicêtre, and finds that

the cases where ossification of the sutures occur prematurely are extremely rare. In view of this, the *rationale* of the operation of craniectomy (Lannelongue) or linear craniectomy (Keen) is disputed. It is claimed that an operation based upon a supposed anatomical condition which is absent is not justified, and cannot be beneficial. The work contains a number of well-stated anatomical facts, especially important in the study of the etiology and pathology of idiocy.

Theodore Kocher, of Berne, ^{301 34}_{B.34; Sept.20} discusses the causes and prevention of cretinism. His observations and researches show that cretinism has a decided relation to goitre in this sense,—that the same factors that produce goitre produce cretinism. Cretinism may be present, however, in an individual who not only has no goitre, but in whom all traces of a thyroid gland are absent. It appears, then, that cretinism bears a close relation to the abolition of function of the thyroid gland. The cachexia following removal of the thyroid (*cachexia thyreopriva*) and myxœdema are discussed in this connection. While there is a general similarity between endemic cretinism, operative cretinism (*cachexia thyreopriva*), and sporadic cretinism (*myxœdema*), there is a decided difference in degree. They all depend, however, upon the abolition of function of the thyroid gland above referred to. The causes of endemic cretinism must be the same as those of endemic goitre. It is probable that this is infectious in nature and dependent upon some factor contained in the drinking-water. What this factor is has not yet been demonstrated. It is suggested, however, that the furnishing of a pure water-supply, or, in the event of that being impracticable, boiling the water, would prove a good preventive measure.

INEBRIETY, MORPHINISM, AND KINDRED DISEASES.

By NORMAN KERR, M.D.,

LONDON.

ALTHOUGH the literature on inebriety during the past year has been very large, with an exception or two the writers have taken the disease view, indicating that the recognition of inebriety in its varied forms, as a disease, is rapidly permeating the promoters of hygienic, social, and temperance reform, as well as the medical profession.

ALCOHOLIC INEBRIETY.

A symposium⁷⁶⁰_{May 21} attracted considerable attention. The necessity of recognizing and treating inebriety as a disease was defended by Moyer, of Chicago; Mayo, Angear, Mann, of Brooklyn; Baker, of Baldwinsville, Mass.; Chenery, of Boston; Gray, of La Porte, Ind., and Skeer, and disputed by Howle, of Missouri. Schaefer,⁷⁶⁰_{May 21} to illustrate inebriate heredity, gives the history of three boys, still sober, born of a strictly temperate father, and of a fourth younger boy, who died of drunkenness at 41, who was born ten years after the same father had become a drunkard. Sonderegger⁸⁶⁶_{June} describes periodic inebriety as a disease of the brain with occasional attacks of insanity, drunkenness being the effect, not the cause. In habitual drunkards pathological changes take place in the brain, no less important than in the palsies of lead poisoning. As the poisoned painter is unable to extend his hands, so is the drunkard unable to carry into execution his paralyzed resolution. Schenk, of Topeka, Kan.,⁶¹_{Apr. 16} is of opinion that the primal cause of drunkenness is to be sought for in the imperfect or irregular development and distribution of the cells through which the conscience and will act. Stewart, of Montreal,¹³⁰_{Jan.} gives the history of a male inebriate whose indulgence in liquor was preceded by acute mania, with delusions of persecution. Ten years afterward, after a drinking bout, he again became insane. The train of mental, sensory, motor, and reflex symptoms never occur together except in alcoholism.

Wright, of Bellefontaine, Ohio,²³⁴_{Jan.} describes the inebriate diathesis as a constitutional proclivity or neurosis, which impels to the inordinate use of narcotics. This peculiar bent of the constitution has been classed as a specific mania, called by Kerr, of London, narcomania. He⁶¹_{Nov. 23, '91} holds that, to deny heredity is to deny parentage. The peculiarities of individual constitutions modify the phenomena and the responsibility of the drunken state, as do racial characteristics. Magnan, of Paris,¹⁷_{Feb. 2} calls dipsomania an irresistible paroxysmal appetite for alcoholic drinks, presenting the characteristics of inherited mental degeneracy. There are present the urgent need to drink, the anguish which resistance occasions, the irresistible impulse to yield to the need, the annihilation of the will at the moment when the sick man yields to the impulse, the gratification which follows obedience to the impulse, with subsequent chagrin and remorse at having succumbed. Crothers, of Hartford, Conn.,²³⁴_{Feb.} cites one of two cases brought forward by a medical opponent of the disease view of inebriety to show that the indulgence had a purely vice origin. Crothers, under whose care this alleged purely vicious drunkard ultimately came, found that a grandfather was a periodic inebriate, one uncle was insane, the father suffered from intermittent melancholia, and the mother was a neurotic. From early life the patient had periods of insomnia, was always lacking in truthfulness and continuous mind concentration. He died of brain trouble. Day³³⁷_{July} who has had over ten thousand cases under his care, insists that inebriety is a disease subject to transmission. Enfield, of Bedford, Pa.,⁶¹_{Mar. 5} argues that inebriety is a disease, and is no more due to habit, vice, and sin than is insanity. Stewart, of Clifton,⁶_{Jan. 9} discriminates between drunkenness and inebriety. Drunkards drink when they have the opportunity; inebriates are diseased persons who drink when their attack seizes them. The drunkard may so injure his brain, structurally or functionally, that he may become an inebriate; the inebriate, however, is one who is generally born with an unsound brain. This is a transmissible cachexia. The child of an inebriate, born after the lesion has been established, inherits some nervous diathesis. The only security is by life-long abstinence on the part of the child. Usher,²_{Aug. 20} in his "Alcoholism and its Treatment," refers to changes in the structure of nerves produced by alcohol, so altering them as to make them appear to

partake more of the character of fibrous cords than bundles of fibres; besides degenerative destructive change in the cells of many of the terminal nerves, obviously a protoplasmic degeneration, in turn replaced by granular fatty matter of a low order of vitality. At other times the nerves are callous and contracted, owing to an abnormal proliferation of cell-elements. Alcoholism may assume an inherited, acquired, or infantile form. Diller,^{161 Aug.} while conceding that many persons are inebriates because they are governed by uncontrollable appetites which are the outcome of diseased nerve-centres, urges that a healthy man may bring about this morbid nervous state by repeated, excessive, and continuous social indulgence.

On the law of periodicity in inebriety, Crothers, of Hartford, Conn.,^{298 July} speaks of the periodicities of the brain, such as of activity and inactivity, of sleep and wakefulness, rise and fall of temperature, migraines, and epilepsies. The periodic inebriate is a type of the neurotic character of cerebral cycle degenerations. Some periodic inebriates are of the insane, impulsive species. The free interval varies widely, and the drink craze comes on abruptly and unexpectedly. No premonitory symptoms herald an outbreak among these; but with others there are always premonitory symptoms, unusual excitement or depression, great business energy or apathy; often there are alarms for a future state, fear of poverty, or dread of sudden death. Then the drink delirium appears, and there is an entire change. Still other inebriates start with premonitory ideas of delusive reasoning, such as that they have some disease requiring spirits. Such cases are frequently checked, in a paroxysm, by some powerful mental emotion, or by chemical restraint. They are prominent in symptoms of paranoia and defects, and are rarely seen occupying responsible positions long. They develop general paralysis and melancholy. A fourth class are noted by the exact recurrence of the drink cycles, irrespective of all conditions and surroundings. With these the paroxysm is as sudden as impetuous, and the mind is filled with delirious conceptions of pleasure from the taste and effects of alcohol. Over 90 per cent. of all periodic cases have a neurotic heredity. The periodicity of the drink paroxysm points to central brain disease. Heredity, innutrition, mental exhaustion, and environment are all very common causes or predisposing factors. Allied diseases, such as epilepsy, are interassociated and interchangeable.

Mason, of Brooklyn,³³⁷_{Apr.} does not think there is a female inebriate climacteric, though he agrees with Parrish and Kerr that this exists in males. The former places this between 40 and 50, the latter between 55 and 65. Kerr, of London,⁸⁰_{Sept.} asks whether delirium tremens is the issue of neurasthenia, or an effect of alcoholic poisoning. He believes it to be the latter, the disease arising from the cumulative specific action of the poison on the cerebral tissues through the alcoholization of the blood. Acting on this theory, he aims at eliminating the poison from the brain and nervous system, leaving the healing power of nature to do the rest. Clevenger, of Chicago,⁷⁷⁹_{Mar.} distinguishes between acute alcoholic insanity and delirium tremens, in which, in addition to the tremors, anæsthesia, and abnormal sensations of ordinary alcoholism, there are delusions of persecution, poisoning, and infidelity. The danger to others lies in the patient appearing sane at times. Cosgrave, of Dublin,¹⁶_{Mar. 1} describes various classes of diseased drunkards, sometimes hereditary, sometimes acquired. The diseased drunkard cannot stop when he likes, though other drinkers can. In one family a lady aged 70 suffered from intermittent alcoholism, her daughter died of delirium tremens at 30, and her granddaughter was seen drunk at 15. Wherrell, of Kansas,¹⁹⁹_{Aug.} is satisfied, from a study of two hundred cases of inebriety, that, with the large majority, drunkenness is primarily a psychological disease, comprising (1) paralysis of the inhibitory power of the will, (2) a temporary amnesia, (3) a temporary effective and intellective modification of the personality. Chaddock, of Traverse City, Mich.,⁹⁸_{Jan.} describes the visual imagery of acute alcoholic delirium as characteristic also of chronic alcoholic alienation. They are not primary, but secondary or illusional hallucinations. The uniformity of the animal visual imagery arises from the influence of physical conditions on nervous tissue made abnormally susceptible by alcohol. Normally there is objective projection of appropriate images in motion, and it needs but a retinal condition sufficient to intensify the retinal images of these entoptic objects, and a cortical state of higher impressionability permitting them to dominate consciousness, to induce a kind of ideation in which the idea of objective motion is paramount. This condition is brought about by alcohol. May, of New York,¹_{Mar.} asserts that there are early symptoms referable to the eye in the person of chronic alcoholists at a very

early stage of the disease. These symptoms are: catarrhal conjunctivitis, congestion of the iris, spasm of accommodation, contracted pupils, photophobia, nyctalopia, a glimmering sensation in bright light, scotomata, amblyopia, and partial atrophy of the optic nerve. Horner, of U. S. N., ⁶¹_{Jan. 16} lays down that nerve and brain tissue and the blood are the seat of the disease of inebriety, though the exact spot of brain-structure affected may not be detectable where this disease begins any more than in epilepsy or insanity. Talbot, of Chicago, ⁶¹_{Oct. 1} from a number of observations at various extensive homes for inebriates, has found a larger percentage of deformities of the jaws among inebriates than among any other defective class,—not, however, so pronounced as among criminals and idiots.

TREATMENT.

There has been a perfect flood of publications extolling the alleged virtues of a great variety of “cures,” the composition of the preparations used in which is, however, not disclosed. Some of these processes are stated by the proprietors to consist of a mixture to be swallowed and of a fluid to be hypodermatically injected. Others are represented to be simply a liquid or a powder, to be taken in any ordinary beverage, such as tea. All are claimed to have proved effectual, either in every case or in the great majority of cases. Recognized medical authors practically unite in declining to employ secret remedies, and agree with Hammond, of Washington, ²⁵⁸_{Jan.} that no medicines or combination of medicines will destroy the appetite for alcoholic liquors, though many medicines are of great value in sound treatment. There is, also, a consensus of skilled opinion that inebriety is curable. One advantage of the secret-cure epidemic will be that, when it dies away, it will leave a deeper impression on the professional and lay mind of the disease element in a substantial proportion of inebriate cases. Crothers, of Hartford, Conn., ⁴³⁰_{Feb.} in reply to the question, Are inebriates curable? says the answer must come from a scientific study of the nature of drunkenness. The popular theories of inebriety form a curious psychological chapter. Persons believing in the vice origin claim the cure of multitudes of inebriates through a religious change of heart. Those who regard drunkenness as the product of a weak will-power combined with an aimless life assert the efficacy of the pledge. Others, who regard intemperance as

always due to a criminal impulse curable by penal suffering, insist on the efficiency of the whipping-post, solitary imprisonment on bread and water, and capital punishment. Yet drunkenness is increasing. The subject must be approached from the physical side, beginning with the heredity of the family and exploiting the health-history of the individual, with his education and environment. The curability of drunkenness, then, becomes a question of the application of scientific measures to assist the unhealthy back to health again. The curability of the inebriate is more certain than the curability of the insane. Crothers, of Hartford, Conn.,³³⁷_{Apr.} and Kerr, of London, are of opinion that, under scientific treatment, one-third of inebriate patients are permanently cured. After an interval of from seven to ten years, in two thousand cases treated at Fort Hamilton, the proportion was 38 per cent. After eight to ten years, 35 per cent. of the survivors who had been discharged (numbering in all three thousand) from the Washingtonian Home, in Boston, under Day, were temperate. In two hundred and sixty-six who passed through the Dalrymple Home, in England, fully 40 per cent. have kept firm. A still greater proportion has been claimed for a variety of methods of treatment referred to by Usher, of Melbourne.³³⁷_{July}

In the modern treatment and prophylaxis of many diseases no therapeutic appliance has been at once more useful and more grateful to the patient than the well-ventilated, airy, properly-kept, and scientifically-applied Roman or Turkish bath. In all forms of narcomania, alcoholomania, morphinomania, chloralomania, etc., in most of the stages of active treatment, unless when contraindicated, this bath, in addition to other baths, is invaluable. The cleansing, purifying, and invigorating influence of a hot-air bath, taken, with due precautions, about one hour and a half to two hours after food, is usually markedly beneficial in the elimination of the anæsthetic from the body, in the renewal of sound tissue, and in the restoration of nerve-tone. Shepard, of Brooklyn,⁶¹_{Jan. 9} advocates the use of this bath in inebriety, which he has applied with advantage to promote elimination, restore natural function, and quiet irritated and inflamed organs. Patients debilitated from acute inflammation and pain have enjoyed the bath twice daily for months. Wright, of Bellefontaine, Ohio,⁹⁸_{Apr.} in treating of the principles involved in the nature and treatment of inebriety, says

that the disease inebriety is one of the forms through which the neurotic constitution declares itself. This constitution is always morbidly irritable, thus displaying the peculiar excitement of nervous exhaustion, which is remarkably susceptible to impression and suggestion. Hence the phenomena of mesmerism, hypnotism, etc., and the possible influence of any substance or "cure" strongly asserted to be curative abiding long enough to tide the drunkard over one or more periods of narcomaniacal cravings. In the treatment of inebriety the most delicate touch should be applied to the strained, irritable, and exhausted nervous system. The diathesis comes from manifold and recondite sources, so that one prescription cannot possibly cure the Protean disease,—inebriety. Care must be taken not to substitute one neurotic form for another; as among the insane, there may be cases of apparent cure and relapse. The author cites the case of a clergyman, an inebriate, who, by being carried away in a great temperance wave, became an eloquent lecturer. By and by he relapsed into drunkenness, and was denounced publicly by religious allies. In five years more he died, and the man, who was "made infamous" by his colleagues in the ministry and punished as a criminal by the law, was found, on an examination of his dead body in the asylum where he died, to have had a leaden bullet, weighing one and one-half ounces, imbedded in one of his lungs, a charge received while fighting the battles of his country. What prescription could have removed the source of his inebriety? In the treatment of delirium tremens, Kerr²²_{Aug.10} has found greater success by ceasing to prescribe narcotics and substituting liq. ammonii acetatis.

On the point of State legislation for inebriates, during 1892¹_{July 23} St. Saviour's Sanatorium was empowered ("Laws of New York State," 1892, cap. 467) to receive, as voluntary and involuntary patients, female inebriates. In the latter case, any county or district judge or justice of a court of record, where the inebriate resides, may, on production of an agreement to receive her and a certificate on oath by two physicians permanently resident in the State and in actual practice for three years, of date within twenty days prior to the application, commit for a year, with power to renew the term. In Switzerland, in the Canton of St. Gall, by a law passed in 1891, any one rendering himself obnoxious or dangerous to his family or the community, through drinking, may,

with a medical certificate, be sent to an inebriate asylum, and be paid for out of the public poor-funds, if his friends are unable to defray the expense.³³⁷
Oct.

As to drugs, Latimer,⁹⁹ June 16 speaking of two thousand and twelve cases of alcoholism, says that alcohol, in any form or quantity, is unnecessary and injurious, and that its absolute and immediate withdrawal is important. Usher²⁰⁵² gives mangan. sulph. and, as a hypnotic, paraldehyde. He reports a number of physicians as giving soda and gold, many relying on some preparation of strychnine. Tuckey, of London,² Aug. 27 reports the "cure" (over two years) of three cases, and of five under treatment and doing well, out of thirty-one by hypnotism, besides others improved, up to date. In three cases there had been no apparent effect. Stewart, of Clifton,² Aug. 27 says he has had several cases of inebriety under his care after hypnotism had been tried and had failed. Inebriety is a disease of the brain, which has gone so far as to affect the will-power. Till the injured brain-tissue is rebuilt there can be no permanent cure.

PHYSIOLOGICAL, PATHOLOGICAL, AND SOCIOLOGICAL RELATIONS OF INEBRIETY.

As to the action of alcohol, Davis, of Chicago,⁶¹ July 9 explains the physiological and therapeutic differences between the carbohydrates constituting proximate elements of living vegetable and animal bodies and those resulting from bacteriological or retrograde action. Liebig's classification of them together is a mistake, and was founded solely on the fact that alcohol, starch, sugar, etc., were all composed of the same ultimate elements, in such proportion as to admit of further oxidation outside of the living body. None of the higher orders of animal life assimilate and appropriate for growth or repair of structure or for support of physiological process inorganic materials not previously combined under the formative or vitalizing influence of animal or vegetable life. Further, the products of retrograde metabolism, as presented in the excretions and eliminations from living bodies, vegetable and animal, are not only incapable of being used as food, but are either inert or positively toxic if retained or re-introduced into the living body. Here is a clear distinction between the carbohydrates—starch, sugar, gum, cellulose, and dextrin from animal nutrition—and the alco-

hols from retrograde metamorphosis or bacteriological excretion, usually termed fermentation. The first class are assimilated into the tissues, cause no unnatural excitement, and create no craving; the second class are not assimilated, effect natural function, produce excitement, and generate a craving. Alcohol, too, is an anæsthetic and paralyzant. A case is narrated²²_{Mar.23} of the death of a female aged 31, a chronic alcoholic inebriate, of fatty degeneration of the muscular fibres of the heart. Death occurred suddenly, as it usually does under such conditions. Mackenzie, of London,²_{Feb.27} inveighs against the common belief that alcohol taken freely acts as a preventive of tubercle. In alcoholic cases the progress of phthisis is rapid and the prognosis particularly unfavorable. A history of alcoholism is a common antecedent in those cases in which there is no inherited susceptibility to tubercle. Post-mortem examinations of phthisical cases at St. Thomas's, London, showed that in 75 cases there was a strong history of alcoholism. In only 10 of these was there any history of phthisis; in 46 (or over 60 per cent.) the liver was cirrhotic. Glaser,³³⁷_{Apr.} in the urine of persons in good health after taking alcoholic drink, found uric-acid and calcium-oxalate crystals, an increased number of leucocytes, with cylinders and cylindroids. He, therefore, concludes that, even in moderate quantities, alcohol irritates the kidneys, the augmented leucocytes, cylinders, and crystals being due either to the increased metabolism of the tissues or an alteration by alcohol of the relations of solubility of the urine salts. After a single indulgence this action lasts for thirty-six hours. But continuation is cumulative.

Potter, of St. Joseph, Mo.,¹¹⁵_{Jan.} as the outcome of an investigation by a committee of the Missouri State Medical Association, into the relations between spirit-drinking, insanity, and crime, reports that returns from twenty-five prisons and penitentiaries in the United States show a proportion, on an average, of the intemperate imprisoned, of fully 70 per cent., while returns from asylums disclose a minimum proportion of all cases of insanity due to intemperance, directly or indirectly, of 25 per cent. Drysdale, of London,²²_{Jan.29} quotes the statistics of abstaining and non-abstaining sections of the United Kingdom Temperance and General Provident Institution, to show that persons who drink no intoxicants live longer, on an average, than moderate drinkers. The record

is of twenty-six years' operations. The actual deaths among the non-abstainers were 97.5 per cent. of the expectancy, and among the abstainers only 70.7 per cent. Forel, of Zurich, ¹³ Aug. 15, to commend abstinence to inebriates and epileptics in asylums, follows the lead of the London County Council by giving no place to beer in the dietary, and by allowing the staff, if they desire it, a money equivalent for a beer ration. The influence in quieting excitement on festive occasions in his asylums is thereby marked. Kerr, of London, ⁷²³ Dec. shows that there has, in the last twenty years, been a reduction, in the United Kingdom, of nearly 60 per cent. in the cost for alcoholic intoxicants in work-houses.

The *Journal of the American Medical Association* ⁶¹ Feb. 13 calls attention to the fact that over two thousand five hundred persons were killed instantly, and over twenty-two thousand injured, by accidents on railroads in the United States in 1891, one of the main causes having been the free use of spirits by the employés. Many train-men, who claim to be temperate, use spirits at home as a domestic medicine. These never drink in public, yet are dangerous alcoholics, because unsuspected,—likely, at any moment, to do strange, insane acts. Psychologically, railroad-men are most exposed to this form of drinking. The nerve- and brain-strain, with irregularities of living, predispose to exhaustion and insomnia, with associated dyspepsias and neuralgias. Alcohol is a seductive narcotic. The constant mind-tension, with the ever-present sense of danger, combine to make railroad-work a perpetual strain on the nerves. Functional disturbances precede organic disorders. Kidneys, heart, stomach, and co-ordinating centres fail first, and spirits cover up these symptoms of exhaustion effectively. The brain fails, though less prominently; duty is performed automatically, and emergencies are attended with unexpected and unusual brain-confusion, though an appearance of temperance is kept up. The hours are too long and the mental pressure too severe. With reference to Europe, Villard, of Marseilles, ² Jan. 18, gives an alarming account of the increase of drinking at Marseilles, formerly noted for its sobriety. The consumption of alcohol has doubled in twelve years. Absinthe is the popular drink. Though little actual drunkenness is seen, everybody is more or less alcoholized. In the public asylum of Marseilles, the proportion of alcoholics among the insane was 20 per cent. in 1888 and 21 per

cent. in 1889. Garnier, of Paris,³³⁷_{Apr.} asserts that, in fifteen years, lunacy has, in Paris, increased 30 per cent., due to the advance of general paralysis and alcoholic insanity. The latter is now twice as prevalent as fifteen years ago. Alcohol is responsible for a third of the lunacy cases at the Dépôt Infirmiry, the tendency being more and more to homicidal mania in the person of youths of barely twenty. Lancereaux, of Paris,¹²¹_{Aug.} affirms that, in Paris, absinthe is used as freely by women as by men. He classes as ethylism, results due to wine; as alcoholism, those dependent on spirits; as absinthism, those caused by absinthe and other essences. Charcot¹²¹_{Aug.} sums up the hereditary influence of alcohol in the aphorism: "Every drop of seminal fluid of a drunkard contains the germ of all the neuropathies." In Germany,³³⁷_{Jan.} cases of chronic alcoholism and delirium tremens, treated in public institutions, have increased from four thousand two hundred and seventy-two in 1877, to ten thousand three hundred and sixty in 1885. E. Holst⁶⁷³_{May} reports that, in a population of about 93,000, in Western Jutland, there were collected, during the decennium 1881-90, yearly reports of the cases of alcoholism treated by various physicians. The total number treated during the ten years was 132, or 1.4 per mille of the population. Fifty-six per cent. of the patients suffered from delirium tremens, 31 per cent. from chronic alcoholism, and 10 per cent. from other nervous affections. Three per cent. of the dipsomaniacs died during intoxication. Of the 132 drinkers, 123 were men, 9 were women. Most of the cases were found in the towns, where the taverns were most numerous. Heredity was proven in 39 per cent. of the cases. Periodical dipsomania, in combination with aberration of the mind, was noticed in 16 per cent. From all the reports, it would appear that during the ten years the number of cases of dipsomania was perceptibly decreasing annually.

MEDICO-LEGAL RELATIONS OF INEBRIETY.

The *Journal of Mental Science* of London,¹⁶⁶_{Apr.} commenting on a *résumé* of the present laws by Sir Henry James, believes that when the criminal law of England is codified a plea of inebriety shall, in a criminal case, be admissible, either to negative a criminal intent or to reduce the criminality of an offense; and that intoxication, whether voluntary or involuntary, which does prevent

a man from knowing the nature and quality of his acts, is entitled to the same privilege that the law allows to insanity, and is a valid exculpatory, not a merely extenuating plea. The editor of the *Medico-Legal Journal* of New York, Clark Bell,²¹⁰_{June} fully indorses the foregoing deliverance. Kerr, of London,³³⁷_{Jan.} proposes a mixed commission of judges, counsel, solicitors, and medical experts to consider the question of dealing with inebriates convicted of an offense against the law. Mason, of Brooklyn,³³⁷_{Jan.} gives instances to show the absence of reasonable motive in criminal acts of the confirmed inebriate, and³³⁷_{July} draws attention to delusions as to locality being a prominent symptom in chronic alcoholic mental derangement. A curious point was raised in a London police-court, during 1891, on the prosecution of a pauper for care and maintenance by the Board of Guardians and for making himself drunk. He had been treated in the infirmary for delirium tremens. The magistrate held that no conviction could be obtained, for the man was ill and unable to maintain himself, and the law could take no cognizance of how the pauperism arose. The prosecutor gave notice of an appeal. Whatever the issue, no practical good can result. What is needed is power lodged with the guardians, either to detain inebriate paupers in special wards for a sufficient time, or to pay for their treatment at a special hospital. They are diseased persons requiring therapeutic seclusion. Parant³³⁷_{Oct.} treats of morphinomaniac trance, citing the case of a literary man in France, who was accused of extreme cruelty to his young child. On judicial inquiry, he was found to be a morphinomaniac, and, though no insanity was detected on medical examination, there was obviously a defect of intelligence and of the will. He was sent to an insane asylum. Guimball, of Paris,⁵⁷_{June 3} holds that the use of morphine causes deficiency of attention and paralysis of will. He also claims that the morphinomaniac, during the period of toxic or abstinent delirium, should be considered as mentally afflicted. In morphine, opium, and haschisch consumers, periods of impulse and delirium supervene, during which they may be dangerous to themselves and others.

OPIOMANIA AND MORPHINOMANIA.

Hadfield, of Colorado Springs,¹⁹⁹_{Mar.} gives daily hypodermatic injections of morphine with a little atropine, gradually lessened,

With this is given strychnine sulphate, dilute phosphoric acid, and tincture of ferric chloride. Generally fifteen to twenty days suffice in severe cases. Hoppel, of Trenton, Tenn.,¹⁹_{Sept.10} denies that morphine abolishes the sexual appetite in women, as asserted by Lancereaux, of Paris, and cites cases of women using from 8 to 15 grains a day, who have regularly menstruated, conceived, and borne children at full term. The offspring are generally born with congenital heart disease. Hines, of Chesterton, Md.,¹⁰⁴_{Mar.19} cautions medical practitioners against administering opiates for the relief of pelvic pain, as he has known harm done in this way to females. Vansant, of Philadelphia,²³⁴_{Aug.} says hypodermatics of morphine are increasing. He reduces gradually, giving hyoscine and chloral-amid, as required. Hurd, of Newburyport,²⁰²_{Feb.25} employs hyoscine hydrobromate and withdraws rapidly by Erlenmeyer's method. Obersteiner, of Vienna,¹⁶_{Sept.} was successful with sixteen of twenty-one patients. If addiction followed a resort for relief of pain, the underlying pain must be alleviated. No general treatment suits every case. Cocaine is occasionally useful, if torments on withdrawal of morphine are very violent, in this form:—

R	Cocain. hydrochlorat.,	.	.	.	7½ grains (0.50 gramme).
	Acid. salicyl.,	.	.	.	1½ grains (0.1 gramme).
	Aquæ,	.	.	.	3¼ ounces (100.00 grammes).

Dose : One-tenth to one-fifth.

Cocaine and ice are useful for emesis. If collapsed, resume morphine.

Crothers, of Hartford, Conn.,³³⁷_{Apr.} objects to the use of the term "habit" in describing opium disease. Kerr,²⁰⁵³ calls this malady opiomania, correspondent to etheromania, chloralomania, and other varieties of narcomania (the disease of inebriety). A considerable proportion of opiomaniacs are the subjects of neurotic inheritance. Alcoholism in parents may tend to opium excess in the children, or to some other interchangeable neurosis. Crothers³³⁷_{Apr.} states that the opium disease appears most frequently in persons with a neurotic and opium diathesis, persons suffering from nutrient disturbances, and those who are invalids or have the entailment of a previous disease or injury. Mitchell, of Avondale, Ohio,³³⁷_{Apr.} agrees with Mattison and Kerr in condemning immediate discontinuance of the drug, and prefers rapid reduction. Mattison begins by saturating the system with sodium bromide. The only authority now

who approves of cocaine is Obersteiner, of Vienna. Mitchell practices confinement to bed, forced feeding, massage, electricity. Cardiac tonics are indicated by the condition of the heart, as indicated by the sphygmographic tracings of Jemmings and Ball. The percentage of cures is from 15 to 25. Hoppel, of Trenton, Tenn.,³³⁷_{Oct.} says the offspring of the victim to the morphine habit has a condition of the nervous system such as, once subjected to some exciting cause, develops the tendency rapidly. Hayes⁴³_{Feb.} reports the death of a newly-born child, dying for lack of opium, the mother having been an opium-slave. Mattison, of Brooklyn,²²²_{Sept.} relates the cure of cases of double and triple narcotic addiction. Bérillon⁶_{July 20} claims for suggestion, from a record of six cases, a curative influence over morphinomania. Hammond, of New York,¹⁵⁵_{July} believing that the craving is one of the symptoms of heart depression, usually, after Jennings, gives one or two granules of glonoin, each containing one-hundredth of a grain, whenever the intense desire for morphine is experienced. Sometimes he uses inhalations of nitrite of amyl. The glonoin granules should not be swallowed, but allowed to dissolve on the tongue. After entire discontinuance of morphine, there is often an undefined desire to do something, the outcome of a debilitated constitution. Tonics are needed, with air and exercise, especially in cycling. Atmaran, of Hingoli,²³⁹_{Apr.} gives two cases of opium-eaters, each taking more than 4 drachms (16 grammes) of the drug daily, who suffered from albuminuria. Opium diminishes arterial tension and produces passive congestion of the kidneys and other organs. Lett, of Guelph,⁶¹_{Nov. 28} emphasizes the need to bear ever in mind that this is a disease, presenting pathological conditions, especially of the nervous system, as pointed out by Clouston, Hughes, Kerr, and others. He practices gradual reduction. Having found the amount of opiate taken in twenty-four hours, he calculates its equivalent in morphine, then divides this quantity by the number of times the patient has to resort to the drug during that period. Watson, of Matteawan, N. Y.,⁶¹_{Nov. 21} gives sodium bromide in large doses for from four to six days to subdue reflex irritation and gradually lessens the dose of the narcotic. Brazier, of Paris,⁹⁸_{July} records the case of a morphinomaniac, who, after he became so, was affected with somnambulistic spells, when he would get up during the darkness of night, resume his official work in his office, and indite

papers full of figures, all found accurate when he awoke to consciousness. B. W. Richardson, of London,³⁸_{3d Q} gives a *résumé* of medical opinions for and against the ordinary use of opium, at two meetings, one in Calcutta, the other in London, in May, 1892. Crombie, Bose, Ghose, Moir, and Kay, of India, defended the moderate use of opium, asserting that in Bengal only from 5 to 10 per cent. of the population are opium-eaters; that the habit is usually contracted as a prophylactic; that, even immoderately taken, opium does not lead to perceptible tissue change, serious crime, or public disorder. Instances are quoted to show the compatibility of excess with good health, as in the case of a morphinomaniac pleader carrying on his avocation for many years, though he took 90 grains of morphine daily. Fayrer, Hendley, Mouatt, Moore, Murray, and Farquharson, of London, take this view. Contrariwise,⁶_{Apr. 2, 30; Apr. 30} the ordinary use of opium is denounced by Maxwell, Morrison, Partridge, Horton, and Pringle, of London, who question the alleged prophylactic usefulness of opium, assert its injurious influence in producing bodily emaciation, impairment of digestion, diminished vitality, and promoting suicide. Russel adds that, after a few years, organic visceral changes are set up, with a general shattering of constitution, which prematurely breaks down the opium-consumer and renders him an easy prey to disease. Pringle, of London,⁶_{Apr. 2} denies that opium is a prophylactic against fever in India. It is stated¹_{June 18} that fifty Bombay physicians have signed a statement that, among their Hindoo patients, the smoking of opium is an evil without a redeeming feature, ruinous to mind, body, and estate. Lewin, of Germany,²⁰²_{Feb. 25} forecasts that, from their effects being imparted in small doses and persisting long, owing to the higher concentration, European spirits are destined to supersede all other intoxicants among tropical peoples. If morphine should be produced cheaply enough it will, in turn, supersede spirits. If alcohol injure the hands of a nation, morphine will destroy its brain. In so far as the State can act, it has no right to allow its offices to remain in the hands of drinkers, still less of morphine-users.

COCAINOMANIA.

Deblefsen¹⁴⁹_{July} records the case of a druggist aged 43, with a syphilitic history, who took 15 to 22½ grains daily. The first

symptoms of intoxication were psychical oversensitiveness, anger, mistrust, aural and visional hallucinations, as well as those of taste, smell, and general sensation, followed by delirium. Memory intact. Abstinence, with from four to six months' seclusion, necessary. According to Norman, of Dublin,¹⁶⁶_{Apr.} medical men are the chief victims to cocainomania. Cocaine is more seductive than morphine; it is treacherous, produces early mental break-down, morally and intellectually, and is intensely toxic. Marasmus and convulsions have been noted. In animals poisoned by cocaine there is a rise in temperature; death, in acute cases, is by asphyxia. Chronic poisoning is accompanied by albuminous degeneration of ganglionic cells in medulla oblongata and spinal cord, of nerve-cells of heart-ganglia, and of liver-cells; also, degeneration of arterial coats, particularly in spinal cord. No mental confusion, nausea, or headache. In one case there were hallucinations of hearing, with delusions of persecution; in another, an older person, depraved sexuality; in a third, loss of the sense of the passage of time, ending in chronic paranoia. (Zanchevski.) Smith, of London,¹⁶⁶_{July} recites the history of a governess, who took morphine injections for neuralgia at ten, and who dated her mania for cocaine to its administration by a doctor for hæmatemesis. She had taken from 24 to 36 grains at a dose. The only abnormal symptoms were hallucinations of sight and hearing. Falk³³⁷_{Jan.} describes cocainists as marasmatic, with pale, yellow skins, the extremities being cool and covered with cold sweat. Eyes sunken, glistening, surrounded by dark rings; pupils dilated. Appetite lost, digestion disturbed. There may be palpitation, dyspnœa, and noises in the ears. They are nervous, trembling, and neurasthenic.

CANNABINOMANIA.

According to Richardson, of London,³⁸_{1st Q} Indian hemp is older than wine as an intoxicant,—the nepenthes of Homer. Haschisch is smoked, though with difficulty, and swallowed. In this intoxication there is a confusion of identity, leading to an impression of dual personality.

ETHEROMANIA.

Kerr, of London,⁶¹_{Nov. 2, '91} describes two outstanding series of inebrio-psychological phenomena in Ireland,—the Father Matthew

temperance epidemic and the ether-intemperance epidemic,—narrating their rise and fall. The consumption of ether for purposes of intoxication has been stopped in Ireland, to the extent of 90 per cent., by the scheduling of that substance as a poison, sold only by chemists, under strict precautions. Its use has increased in Norway.³³⁷ Kerr, of London,⁶¹ says that, on methylated ether, an Irishman could get drunk three times for once on whisky, at a third of the cost.

TOBACCOISM.

Tassinari, of Rome,²² defends tobacco-smoking as a disinfectant and prophylactic against infectious diseases. He quotes Willis, Rueb, Cook, Miller, of New York, and Vassili, of Naples, in support. Tobacco-smoke, on being passed through the interior of hollow bulbs, lined with gelatin containing disease-germs, for from ten to thirty minutes, destroyed the bacilli of Asiatic cholera and of pneumonia. A resolute effort is being made in Britain to procure the prohibition of smoking, as in Massachusetts, to lads under sixteen, the practice of smoking by young people having greatly increased and been extensively condemned by the medical profession. Drysdale, of London,² asserts that, in Paraguay, men, women, and children smoke. The London *Lancet*⁶ states that one hundred young men died in the United States, mostly under sixteen, from smoking paper-wrapped cigarettes. Merlin, of Algeria,¹⁴² reaffirms that tobacco-smoking causes labial cancer. Juan Santos Fernandez¹⁷⁹ says that nicotine amblyopia is very rare in Cuba, although smoking is so common and excessive. He accounts for this by the manner in which the tobacco is smoked, viz., neither in pipes nor with too much chewing. He adds that the differential diagnosis between alcoholic and tobacco amblyopia is very difficult, sometimes impossible. Chapman, of Louisville,¹³⁹ describes three cases of poisoning by tobacco-vapor in a tobacco-stemmer; one, of a girl 9 years old, was fatal in nine days.

TEA AND COFFEE DRINKING.

Luderitz,¹⁸⁶ in experiments with coffee infusions of from 10 to 20 per cent., found that all organisms placed therein died, sooner or later. Anthrax bacilli were destroyed in three hours, cholera in four, erysipelas streptococci in one day. The antiseptic effect depends on the empyreumatic oils developed by roasting. These con-

clusions have been confirmed by Wies, Oppler, and Rabateau. The *Lancet*⁶_{Nov. 20, '91} condemns the immoderate use of tea, or "tea-tipping," as highly injurious to health.

DISEASES OF THE UTERUS, PERITONEUM, AND PELVIC CONNECTIVE TISSUE; DISORDERS OF MENSTRUATION.

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AND

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PELVIC DISEASE.

General Considerations.—An interesting study of the functions of the reproductive apparatus in American Indian women has been presented to us by Currier.¹ Nov. 14, '91 From this study he draws the following conclusions:—

“1. Puberty: The mere fact of living in a savage state had not much to do with the early or late appearance of puberty. The Apaches and Mojaves of the hot and desert regions of Arizona matured young, but so did the females of southern Europe and the tropics generally. The law was general that both animals and plants should mature early under a tropical sun. The females in the northern tribes—the Cheyennes, Arapahoes, Crows, Assiniboines, and Sioux—developed more slowly, as was the case with women in northern Europe.

“2. Phenomena of menstruation: Savage life, with its vicissitudes and hardships, did not usually interfere with the regular recurrence of the monthly flow. Influences which would disturb or check it, and possibly produce permanent injury to a woman in civilized life, seemed to have no such effect upon Indian women. Excessive menstruation was practically unknown. On the other hand, there were occasional instances of dysmenorrhœa or amenorrhœa, in connection with disease or deformity of the pelvic organs; so that savage life did not necessarily furnish immunity from such experience.

“3. The menopause: Indian women were exceptionally free from the nervous and vascular disturbances which so commonly

accompanied the menopause in civilized life. The duration of the menopause varied greatly, as it did in civilized life. It usually came between the fortieth and fiftieth years, but not infrequently was delayed far beyond the fiftieth year. Many gestations occurring in rapid succession, continuous hard work, and the exposure and physical suffering incidental to a savage life, did not tend to shorten the menstrual and child-bearing periods.

“4. Marriage and sexual appetite: The social condition of Indian women was an anomalous one for this age and country. They must bear the burdens, do the drudgery, bring forth and rear the children, and then, perhaps, be cast aside at the merest whim of their husbands. Marriage among American Indians meant, as a rule, communism, polygamy, unrestrained lust, according to circumstances, all of which must be abandoned as they emerged into civilization, for they were incompatibles. Sexual appetite, in Indians, was the uncontrolled and uncontrollable desire of the wild beast, or it was an indifference in women of the degraded and debilitated tribes, except as it was associated with the idea of gain.

“5. Conception and gestation: The habits and manner of life, in the more vigorous and well-developed Indian women, were favorable to fruitfulness in child-bearing. But the facts that so many children died in infancy, and that the restraints of civilized life were fatal to so many more, showed that the race was not a hardy one. The unhygienic condition of the homes in many tribes, with their filth and degradation, and the frightful abuses of the abortionists in others, were further tending to weaken the race and impair its future.

“6. Parturition: The ease with which parturition was accomplished among Indians was an interesting fact. It must not be overlooked that the squatting or kneeling posture which they assumed during labor was more favorable to muscular effort than the postures with which we were familiar in the lying-in chamber. This was a suggestive fact. So, also, was the apparently total absence of puerperal diseases among Indians. This was the result of pure air and plenty of exercise, and not of antiseptics or even ordinary hygiene. The quick recovery and return to their usual duties of Indian parturients also suggested the possibility that we sometimes made invalids of our obstetric patients, unnecessarily. Accidents occasionally occurred among Indian parturients, just as

they did among animals. Nature's work was sometimes far from perfect. This meant death to the mother or child, or both, unless an intelligence beyond that of the savage could be summoned to avert it.

"7. Pelvic disease: That pelvic disease had not been treated among Indians did not prove that it did not exist. Those diseases which resulted from infection, deformity, maldevelopment, and faults of circulation probably existed, but they went untreated and more or less unheeded, until the suffering caused by them became keener and confidence in educated physicians stronger. The malignant diseases of the reproductive organs were almost unknown among Indians. This showed that neither privation, nor hard work, nor exposure, nor giving birth to many children necessarily resulted in the neoplasms which so afflicted civilized women.

"8. Venereal disease: Both local and constitutional forms of venereal disease abounded among Indian women. The frequency of syphilis, coupled with the great mortality among infants and the great prevalence of glandular and pulmonary diseases among many of those who survived infancy, were evidences of the inroads which venereal disease had made upon Indian vitality.

"Finally: Indian women, in the savage state, underwent less physical suffering in connection with the reproductive apparatus than civilized women. They menstruated, bore children, and passed the menopause with the minimum of discomfort, as a rule. This was due to three causes: (1) natural or racial insensitiveness, compared with the far more sensitive Caucasian; (2) abundance of exercise; (3) life in the open air.

"Civilized life, with its complex conditions, would always present obstacles to the performance of the functions peculiar to women with the same ease with which they were performed by savages; and, when Indian women exchanged the savage for the civilized state, they must necessarily adopt, also, some of the ills inseparable from the latter."

The making of vaginal examinations, in virgins who complain of pains in the back and headache at the menstrual period, is severely condemned by McMurtry,<sup>170
Sept.</sup> who states that if such an examination be necessary it should always be done under an anæsthetic. He next condemns the use of the sound, for it is not

essential in order to make an accurate diagnosis, and may carry infection to the endometrium, often denuding the mucous membrane, and may even penetrate the cavity of the uterus and enter the peritoneum. He also condemns intra-uterine applications for the relief of pelvic disease. Likewise the forcible dilatation with sponge-tents and steel dilators for the relief of nervous symptoms, dysmenorrhœa, and sterility. Trachelorrhaphy, he states, is often performed for the relief of pelvic affections and nervous disorders, the results naturally being disappointing. Curetting and application of caustics to the uterus often increases, rather than diminishes, pelvic diseases. He summarizes his views in the following manner:

"1. The etiology of intra-pelvic inflammation (salpingitis, ovaritis, and peritonitis) may be threefold: (a) puerperal, (b) specific, (c) post-operative (traumatic). 2. Unnecessary and uncleanly examinations, with introduction of the sound, may cause, by traumatism and infection, pelvic inflammation. 3. Forcible dilatation, with steel instruments, sponge-tents, and other instruments, may beget intra-pelvic inflammatory disease. This operation has a very narrow sphere of utility, and is usually performed upon erroneous pathological data. 4. Operations on the cervix, with associated disease of the appendages, is dangerous. The treatment of lacerations by caustics and astringents is never satisfactory and always dangerous. Trachelorrhaphy is an operation of high utility, but requires discrimination in application and skill in execution in order to obtain good results. It is often the initial step in tubo-ovarian disease of severe type. 5. Curettement, while of unquestioned value in removing neoplasms and detritus from the endometrium, is abused as a method of treating inflammatory conditions of the pelvic organs. The curette is an instrument capable of causing extensive lesions that may light up an inflammation extending to the appendages and peritoneum, or aggravate a pre-existing inflammation therein."

Coc¹⁹_{May 14} also disapproves of making vaginal examinations in young unmarried women, believing that we should try general treatment first, but that, if an examination does become necessary, it should always be done under an anæsthetic. Noble²³⁴_{July} thinks that gynæcological treatment, in office practice, should be confined to prescribing hygienic, dietetic, and medicinal remedies, the employment of vaginal and cervical applications, the reposition of dis-

placed organs, massage, and the fitting of pessaries, but that all operative treatment should be avoided. Mechanical influences in pelvic disease are discussed by Lobingier,⁹ Jan. 16 Keating,¹⁵⁵ Aug. who speaks of the influence of constipation, and urges the importance of a rectal examination, and West,¹⁰⁰³ Aug. who condemns the wearing of the corset and shows its effect as a factor in the production of pelvic disease. Lobingier, in her paper, presents the following points:—

“ 1. Mechanical remedies are important, and local applications are not sufficient. 2. The four mechanical aids considered are the *pessary*, *abdominal bandage*, *gravity*, and the *suction-force of respiration*. Of these, the first two are least effective, because they operate on incorrect mechanical principles. Their aid is temporary and palliative, and their continued employment subject to abuse. 3. *Gravity* is a powerful palliative agency, and its tendency is curative, but it is a force that cannot be employed continuously, and it is directly dependent on the patient's will. 4. The only mechanical power that can be in constant operation, and is strictly curative in uterine disorders, is the *suction-force* of unrestrained respiration. This power is fundamentally correct in principle, it operates independently of the patient's will, and is the only force adequate to successfully antagonize the prolapsing tendency of gravity. 5. Any mechanical treatment must fail of complete success if it ignores the upward respiratory lift of the viscera, dependent on unrestricted action of the diaphragm.”

The Weir Mitchell treatment is strongly recommended by Sloan.²¹³ June He gives his patients exact directions, thus: Breakfast in bed at 8; rise at 9; light meal at 11; walk for two hours; dine at 2; go to bed till 5; light meal; another one at 9, and to bed at 10. When not engaged in walking, patient to rest on a couch. At the request of the government, Stratz⁹⁹⁶ Mar. 25 examined 1000 Japanese women, most of them prostitutes. Their ages ranged between 16 and 30. Omitting those suffering from acute gonorrhœa or syphilis, he found 162, or 16 per cent., perfectly healthy; whereas, the remaining 838 suffered from the following affections: retroflexion, 605, or 60 per cent.; ovarian tumors, 130, or 13 per cent.; myomata, 90, or 9 per cent.; infantile uterus, 24, or 2 per cent.; salpingitis, 104, or 20 per cent.; parametritis 25, or 5 per cent.; prolapsus, 22, or 2 per cent. Besides these, there were 2 cases of elephantiasis, 1 osteoma of the pubis, 1 double uterus and vagina,

3 urethral polypi, 1 stenosis of the vagina. The frequency of retroflexion he attributes to massage, which they practiced upon themselves immediately after parturition.

MENSTRUATION.

Menstruation in the Insane.—Bissell ¹⁰⁵_{Apr. 15} has studied the condition of the menstrual function in the insane (see summary of table), and concludes as follows:—

“I. That there is no entirely regular menstrual history, if a number of years be taken into account, and that periods falling in from between three and five weeks are to be considered normal.

“II. That normal menstruation is an expression of the general condition, and that its suppression is often only an indication of the needs of the system, and so is a conservative act of nature.

“III. In the chronic insane the menopause makes no radical change in the form of disease.

“IV. In acute cases menstruation returns with regained general health, and is an indication that the system can again sustain the loss of force. It is always to be regretted when there is not, at the same time, increased mental vigor.

“V. Tonics and general measures are, as a rule, preferable to direct or local treatment, though sometimes both are valuable.

“VI. The underlying conditions which cause irregularities of menstruation are oftener the cause of mental disease than those deviations *per se*.”

MENSTRUATION AFTER FORTY YEARS OF AGE.

	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	Total.
Regular.																		
Native . . .	4	.	4	1	4	.	.	1	.	1	.	.	.	.	.	.	.	15
Foreign . . .	1	2	2	2	.	2	4	.	.	1	.	.	.	.	.	.	.	14
Total . . .	5	2	6	3	4	2	4	1	.	2	.	.	.	.	.	.	.	29
Irregular.																		
Native . . .	4	4	7	6	2	6	6	4	5	.	3	7	1	.	1	.	.	56
Foreign . . .	6	3	1	6	4	1	4	5	4	2	5	2	1	.	1	.	1	46
Total . . .	10	7	8	12	6	7	10	9	9	2	8	9	2	.	2	.	1	102
Ceased.																		
Native . . .	.	1	1	2	.	.	4	2	2	2	5	1	4	3	4	2	4	37
Foreign . . .	.	.	1	.	1	1	2	2	.	.	2	3	1	4	4	1	1	23
Total . . .	.	1	2	2	1	1	6	4	2	2	7	4	5	7	8	3	5	60

AGE AT CESSATION OF MENSTRUATION.

	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
Native	1	.	1	.	.	.	.	1	1	.	2	3	.	.	1	.	.
Foreign	1	.	.	1	.	.	2	.	.	.	2	2	.	.	.	.	1
Total	2	.	1	1	.	.	2	1	1	.	2	5	.	.	1	.	1

REGULARITY OF MENSTRUATION.

NATIVE-BORN INMATES.										FOREIGN-BORN INMATES.									
	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	Total.		15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	Total.
Spring.										Spring.									
Regular .	1	2	10	16	12	11	5	.	57	Regular .	.	.	3	11	9	9	9	.	41
Irregular.	1	5	11	14	13	18	10	3	75	Irregular.	1	1	2	7	11	13	6	2	43
Ceased .	.	.	.	.	1	2	2	.	5	Ceased .	.	.	.	.	.	.	1	.	1
Summer.										Summer.									
Regular .	1	1	14	19	18	10	6	.	70	Regular .	1	.	3	13	8	11	10	.	46
Irregular.	1	5	7	11	8	18	10	3	63	Irregular.	.	1	2	5	12	10	5	2	37
Ceased .	.	.	.	.	.	3	1	.	4	Ceased .	.	.	.	.	.	.	1	.	2
Autumn.										Autumn.									
Regular .	1	1	8	22	14	14	1	.	61	Regular .	1	.	1	13	9	8	8	.	40
Irregular.	1	6	12	7	11	14	10	2	63	Irregular.	.	1	4	5	11	13	7	2	43
Ceased .	.	.	1	1	1	3	6	.	13	Ceased .	.	.	.	.	.	1	1	.	2
Winter.										Winter.									
Regular .	2	2	8	17	15	18	4	.	64	Regular .	1	.	2	13	7	9	6	.	38
Irregular.	.	4	13	11	10	11	9	2	60	Irregular.	.	1	3	5	11	11	7	2	40
Ceased .	.	1	.	2	1	2	4	1	11	Ceased .	.	.	.	.	2	2	3	.	7

Early Menstruation.—Cases of early menstruation are reported by Iakubovitch⁵⁸⁶_{No.3} and Tchernomordik.⁵⁸⁶_{No.4} The former's case was that of a girl of 6½ years, in whom menstruation has occurred since her second year, coming on several times a year, but most frequently in the summer months, and lasting three or four days. The menstruation is preceded by irritability and followed by headache, giddiness, and other signs of anæmia. Her mammae are the size of a small orange; the clitoris and labia minor hypertrophied; the labia major normal. In Tchernomordik's case, the child began to menstruate before she was a year old. The hæmorrhage recurs every four weeks, and lasts four of five days, and is accompanied with pains about the hypogastrium. The first menstruation was preceded by fever, an urticaria-like rash, and general restlessness, which lasted for three days, these symptoms subsiding when the bleeding appeared.

Non-Menstruation.—H. W. Mitchell⁸²_{Apr.9} reports such a case in a healthy girl of 24. The mons veneris is almost destitute of hair. She has no sexual instincts whatever. The clitoris is normal.

Dysmenorrhœa.—Oliver ³⁶_{July} does not believe that the ripening and bursting of a Graafian follicle is the cause of menstruation, but that it is determined by a spontaneous evolution of nerve-energy, by a liberation of motion which results from chemical changes taking place in certain nerve-vesicles, these changes requiring, in any given case, a greater or less length of time for their completion. He believes that dysmenorrhœa may be due to (1) changes in the nervous apparatus; (2) want of harmony on the part of those vessels which ought to respond to the nerve-change evoking menstrual discharge; (3) abnormal states of the reproductive organs themselves; (4) disturbances correlatively taking place in other more remote organs, especially the intestines. His treatment consists in the administration of large doses of bromide (especially the three salts in combination, potash, soda, and ammonia) every night at bed-time, for a week, midway between the periods, and 5 grains (0.32 gramme) of antipyrin every hour, beginning as soon as the pains are felt, and kept up, if necessary, till six doses are taken. He employs phenazonum to lessen the amount of discharge, but finds it worthless in cases where the discharge is scanty. In these cases he recommends a hot bath, to be taken for six nights before the expected time, followed by a mixture of the three bromides, containing 10 to 20 grains (0.65 to 1.30 grammes) of each. If pains are due to gastro-intestinal derangement, he gives a mixture containing calcium chloride, or hypophosphite of lime, intra-menstrual, and phenazonum, 5 grains (0.32 gramme), every hour, up to 30 grains (2 grammes), when the pains begin. He condemns dilatation, opium, and hot alcoholic drinks for the relief of this affection.

Madden ¹⁶_{May} does not agree with Champney (see ANNUAL, '92), in regard to his theories of obstructive dysmenorrhœa. He has treated many hundreds of cases, has found stenosis, or constriction of the cervical canal, and has always cured them by operative treatment. For dilatation he employs a two-bladed instrument. When the dilatation does not suffice, it may be necessary to use a Sims knife or a Simpson metrotome. After dilatation he keeps the canal patulous with a Duke spiral-wire stem pessary. The following drugs are recommended by Ross ¹⁹²_{Oct.} for the relief of dysmenorrhœa: macrotys, pulsatilla, aletris, viburnum, helionas, aconite, hydrastis and belladonna. Bevil ⁶⁶³_{Sept.} employs salicylate of soda.

He begins one week before the expected flow, and gives 10 grains (0.65 gramme) after each meal. Brunton ¹⁵_{Apr.} speaks highly of the use of *actæa racemosa*, giving the tincture in from 20- to 30-drop doses three times daily, beginning four days before the expected flow.

Menorrhagia and Metrorrhagia.—Collins ¹⁵⁵_{Apr.} calls attention to a certain form of persistent uterine hæmorrhage which is dependent upon the uterine appendages, especially salpingitis, associated with varicose uterine and ovarian veins. The cause is a catarrhal endometritis, which has, by extension, involved the lumen of the tube. The symptoms are uterine catarrh involving the tube, peritoneal exudation, accompanied by pain and tenderness over one or both ovaries, enlarged tubes, exudations in and about the broad ligaments, and a hæmorrhagic discharge, mixed with glairy, stringy mucus. He found the only successful treatment for this to be the positive pole (intra-uterine) of the galvanic currents, using from 15 to 100 milliampères.

Routh ⁶_{v.1,p.748} reports fifty-two consecutive cases of uterine hæmorrhage treated by rapid dilatation, and considers the following conclusions as proven: "1. That where there is profuse menorrhagia, and more especially where metrorrhagia is also present, without obvious cause, the cavity of the uterus should be explored. 2. That the best way to explore the uterine cavity is to rapidly dilate the cervix with graduated bougies, under anæsthesia. 3. That with rigid antisepsis there is practically no risk, and very rarely any subsequent pyrexia, unless malignant disease or salpingitis is present. 4. That, even where tubal disease is present or suspected, exploratory dilatation of the cervix, *for metrorrhagia of apparently intra-uterine origin*, is not necessarily contra-indicated; salpingitis being often secondary to and aggravated by intra-uterine disease. Here, again, antisepsis is all important. 5. That where fibroids of the uterus are evidently present the immediate cause of the hæmorrhage may be a removable one, such as a co-existing polypus or a fungous endometritis, and that, therefore, the uterine cavity should be, when practicable, explored before removal of the appendages or hysterectomy is entertained. 6. That, in some cases, dilatation alone suffices to greatly relieve both the hæmorrhage and pain. 7. That if an exploratory dilatation were more often adopted prior to the employment of Apostoli's treatment, it would tend to a more exact

knowledge of its applicability, and put its use on a more scientific basis." Gottschalk⁴¹_{Sept.12} has employed hydrastinin in uterine hæmorrhage, with most gratifying results. He uses it by hypodermatic injection and by the mouth, the former acting much more rapidly. By mouth he gives 0.05 gramme ($\frac{1}{5}$ grain) three times a day, larger doses producing gastric disturbance. He finds it more effective than the fluid extract of hydrastis. It is, however, of no avail in cases where a contraction of the uterus is desired in order to control hæmorrhage; here we must employ ergot. It acts most satisfactorily in cases of uterine congestion. In cases of obstinate metrorrhagia, in which ergotin and hydrastis, ice and tampons are of no avail, a hypodermatic injection of sulphate of atropia, $\frac{1}{2000}$ grain (0.00032 gramme), twice a day, has been recommended.²⁶_{May} A case of metrorrhagia caused by a leech is reported,²¹¹_{Sept.11} in a woman, aged 56 years, who suffered from uterine hæmorrhages. She consulted one physician, who prescribed, but without effect. She then saw Alemany and Valenzuela, who, on examination, were much surprised to find a leech fixed to the cervix. It had bitten the organ in several places. It was removed with forceps, and the hæmorrhage ceased. The presence of the leech is explained by the woman as perhaps being due to her bathing in a pond in which leeches were plentiful.

ENDOMETRITIS.

A bacteriological examination of the endometrium in twenty-five cases of endometritis was made by Brandt,⁹⁰_{Apr.} and fourteen distinct species of micro-organisms were found, viz.:—

I. PATHOGENIC MICROBES.

1. Staphylococcus pyogenes aureus,	3 cases.
2. " " albus,	3 "
3. " " citreus,	1 case.
4. Streptococcus pyogenes,	2 cases.
5. Gonococci,	3 "

II. NON-PATHOGENIC MICROBES.

1. Sarcina lutea,	3 cases.
2. " alba,	1 case.
3. Bacillus subtilis,	3 cases.
4. " thin, rod-shaped bacteria,	3 "
5. " ovoid cocci,	4 "
6. " large-sized cocci,	7 "
7. " medium-sized cocci,	9 "
8. " minute cocci,	7 "
9. " diplococci (lemon-yellow growth on agar),	1 case.

From his studies, he draws the following conclusions: "1. In cases of endometritis the uterine cavity almost invariably contains both pathogenic and non-pathogenic microbes. 2. Of pathogenic microbes, there occur the streptococcus and all species of the staphylococcus. Of non-pathogenic forms, cocci are met with more frequently than rod-shaped bacteria. 3. In chronic corporeal endometritis, non-pathogenic micro-organisms (cocci of various sizes, diplococci, and bacilli) are found more commonly than pathogenic ones (staphylococci, streptococci, and gonococci). 4. Such cases of chronic corporeal endometritis in which the pyogenic microbes are discovered do not differ in any clinical particular from those in which no pyogenic cocci can be detected. 5. Inoculation of the endometritic pyogenic microbes into animals always gives rise to local suppuration, accompanied by fever. 6. In chronic corporeal endometritis there may be observed, though by no means constantly, the penetration of microbes into the deeper strata of the uterine mucous membrane. 7. It is just possible that suppurative parametritis can be caused by the pyogenic microbes penetrating into the peri-uterine cellular tissue, and then through the uterine parenchyma and lymphatic vessels. 8. The differentiation of an infectious parametritis from a traumatic one is entirely incorrect from a scientific stand-point. All forms of parametritis are of a bacterial causation, while traumatism constitutes solely a predisposing moment, the structural lesion favoring an easier penetration of the pathogenic microbes from the uterine cavity into the peri-uterine cellular tissue. 9. Abscesses, occasionally developing in fibromyomata of the uterine body, are caused by the pyogenic microbes present in the womb's cavity. 10. The uterine cavity of perfectly-healthy women requires further studies in bacteriological regards, our present knowledge being yet pretty defective." Bossi¹⁶²_{Jan. 05} shows that strong caustics first destroy the endometrium, which is reproduced, but in a morbid form. The orifices of the uterine tubular glands become obliterated, and these glands undergo cystic degeneration. This is followed by an atrophy, or an hypertrophy, of the endometrium. When the endometrium is treated by means of a curette no such changes ever occur.

Uterine Therapeutics.—Many authorities disapprove altogether of the application of drugs to the uterine mucosa in cases

of endometritis. For the chronic variety, Waldo,¹_{Feb.13} Baldy,¹⁹_{Mar.12} Noble,²³_{June} Garrigues,⁷⁶⁰_{Apr.30} Gossmann,³¹_{May 31} Thielhaber,³⁴_{June 28} and Goffe,⁸¹_{Sept.} all recommend dilatation, curetting, irrigation, and drainage as the best and most rapid method of obtaining a cure. Wylie,²⁰⁶⁵ after dilatation, curetting, etc., introduces a properly-curved, hard-rubber drainage-tube up to the fundus, which patient retains for about eight days. The various plans of treatment have been carefully studied by Lantos,⁸⁴_{Dec.5,'91} He does not approve of injecting fluid into the uterine cavity, for the reason that the openings of the syringe become filled with mucus, and thus the drug does not reach the affected portion of the mucosa; nor does he believe in introducing drugs on a sound or probe, because the drug is not equally distributed. The dusting of powders upon the vaginal mucous membrane has no effect whatever upon the uterine mucosa. He also condemns the application of pencils of chloride of zinc, because they cauterize, cause severe pain, and often produce a metritis and perimetritis. In cases of interstitial endometritis he has obtained the most satisfactory results by dilating, then injecting a litre (quart) of a 3-per-cent. solution of soda, followed by the same quantity of bichloride, carbolic, or creolin. After this the patient must remain in bed from three to five days. Lantos has invented a specially-devised syringe for the injection of chloride of zinc. First, a 3-per-cent. solution of soda is introduced through the syringe, then sucked up again, and then the zinc solution is injected. For glandular or chronic catarrhal endometritis, he believes curetting to be the best means of obtaining a cure. G. Francis Smith²⁶⁷_{Aug.} inserts a sponge-tent, leaving it from twelve to twenty-four hours, then curettes, then swabs the cavity with pure carbolic, and introduces a glycerin-tampon into the vagina. This is followed by douches of boric acid, or the introduction of the yellow oxide of mercury.

Mariantelikh,⁵⁸⁶_{No.7} after a trial of ichthyol, concludes that "(1) it does not manifest any curative influence whatever, on either gonorrhœal or hæmorrhagic endometritis; (2) repeated injections of an aqueous solution of boracic acid and an internal administration of liquid extract of hydrastis Canadensis give much better results in such cases; (3) in cases of cervical erosions, ichthyol is inferior to empyreumatic acid (acidum ligni empyreumaticum, acidum vel acetum pyrolignosum); (4) the supposed destructive

action of ichthyol on the streptococcus pyogenes and staphylococcus pyogenes aureus is of no practical value whatever, since the microbes are imbedded deeply in the uterine muciparous glands, the drug being unable to penetrate into the latter and to reach the cocci; (5) on the whole, the therapeutic effect of ichthyol is limited to allaying pain (provided the application is made repeatedly)."

Cases of endometritis treated by pencils of sulphate of copper are reported by Arnaud⁶⁷_{May 15} and Matignon¹⁵⁴_{Sept. 1}. In Arnaud's cases the ages varied from 16 to 23 years. He finds the action of the drug to be a superficial one, not producing the deep eschar made by chloride of zinc. He also finds that it is just as effective as zinc, and that it does not produce atresia of the cervix. All of his cases were first treated by other means, but without benefit. They were all cured by the copper treatment in from four to twenty-five days. Only one application was made. As a preliminary step, he recommends strict antisepsis of the genital tract, rest in bed, giving bromide one day previous, repeating it, and, if necessary, a uterine injection of chloral. Matignon, on the other hand, found that a violent reaction occurred after the use of a pencil of 50-per-cent. sulphate of copper. A sloughing of the mucous membrane took place, and also of some of the muscular coat, as shown by a microscopical examination. A stenosis resulted, which was treated by dilatation.

Asch⁶⁵⁰_{No. 13} treats gonorrhœal endometritis in multiparæ by dilating with laminaria, washing out the uterus twice daily with a soda solution; then irrigating with bichloride or nitrate of silver, using a metallic or glass catheter; then draining with iodoform gauze passed up to the fundus. In nulliparæ he employs Apostoli's method, passing a platinum electrode attached to the positive pole into the uterus, keeping up the current for five minutes and using from 90 to 150 milliampères. Pletzer²⁶_{Aug.} reports a case of death resulting from an intra-uterine injection of perchloride of iron. The patient was curetted for endometritis, and, owing to the bleeding, the following day iron was carefully injected drop by drop. She died two hours later. At the post-mortem clots were found in the uterus and thrombi in the iliac veins. Putti²¹⁴⁵_{Feb. 15} reports a case of septic endometritis, following a twin labor, which was treated by a continuous irrigation of bichloride of mercury (temperature, 40° C.—104° F.); soon after the treatment was begun the temperature fell and the patient made a rapid recovery.

Metritis.—Interstitial injections of creasote are recommended by Brasseur¹⁵¹_{Feb.} in cases of cervical metritis. He employs a Pravaz syringe and injects, into two or three places, a quarter of a syringe-ful in each, a mixture of pure creasote, alcohol, and glycerin, in equal parts. This is followed by the application of a powder composed of tannin, iodoform, and salol.

Keiffer¹⁵⁴_{May 1} considers that the pessary is indicated in cases of metritis, under the following conditions: (1) in endometritis accompanied by prolapsus uteri; (2) in metritis with slight pelvic adhesions; (3) in incomplete uterine involution; (4) after curettage in the preceding cases, and especially after curettage post-abortion.

DISEASES OF THE CERVIX.

Lacerations.—This subject has been discussed by Clarke,⁶¹_{July 2} Dunning,⁶¹_{Feb. 13} Bogart,¹²_{Apr.} Godson,²²_{Dec. 2, '91} and Graily Hewitt.²²_{Nov. 29, '91} The effects produced by lacerations, as stated by Hewitt, are interference with the circulation of blood and lymph in the cervix, enlargement of the Nabothian follicles, endocervicitis, eversion of the os, and cicatricial infiltration of the tissues. Data do not prove that lacerations predispose to cancer, and Godson, after twenty years experience, has come to the same conclusion. Johnson-Alloway²⁸²_{May} prefers excision of the cervix uteri to trachelorrhaphy in cases of long-standing lacerations and proliferating endometritis. He operates as follows: The patient is placed in the exaggerated lithotomy position and the vagina made aseptic. The cervix is pulled down and dilated with a powerful steel dilator, and the endometrium thoroughly curetted with Martin's sharp curette until the ring of the instrument is distinctly heard upon the muscular walls of the uterus. All the mucosa having been thoroughly removed, the cervix is split open on each side by straight scissors to the vaginal vault. A scalpel is then drawn across the base of the lower segment of the cervix, until it is severed to the vaginal mucosa. A straight bistoury is then made to transfix the cervix from its lower end in such a way that the point of the bistoury emerges in the centre of the transverse incision previously made, and cuts outward each way. The flap is then trimmed off with scissors; silk-worm-gut sutures are passed from within the cervical canal outward (two in number) and tied. The upper segment of the cervix is treated in the same way, and the operation finished by

passing one suture on each side to close the gaping angles. This operation leaves a large open canal for drainage, and should be performed, including the curetting, in about fifteen minutes. The only special points in connection with the operation are: that specially curved and very strong needles must be used; a very thin, straight bistoury for transfixing; Alloway has most often used silk-worm-gut sutures, but lately he has been using sterilized catgut, and, although he cannot work quite so rapidly as with silk-worm gut, it has the advantage of disappearing by absorption in the course of eight or ten days. Silk-worm gut also is liable to cut through the tissues and cause secondary hæmorrhage. The dangers of the operation may be summed up in one word—"hæmorrhage." The work must be done rapidly, as the blood loss is continuous and profuse, and can only be arrested by the application of the sutures. For this reason he recommends one segment of the cervix to be done at a time. He has had three cases of secondary hæmorrhage occurring on the sixth day, all due to the cutting through of the flap-tissue by the silk-worm gut, and in all these cases the flap had to be secured again by suture. He warns against loss of time with styptics and the tamponade. They will not arrest the hæmorrhage and may endanger the patient through extreme loss of blood. Since he has been using catgut as suture material he has not had this accident. He gives a statistical table of ninety-one cases operated upon by him in this way with most gratifying results.

Cervical Stenosis.—Duke²⁶_{May 2} states that if permanent relief is to be obtained in cases of cervical stenosis, the natural calibre of the cervical canal must be maintained and the os kept a proper size. He employs a spiral-wire stem, 2 inches long, with vaginal flanges, rendering it self-retaining. Douches must be taken regularly to prevent formation of secretions about it. He allows the instrument to remain *in situ* for at least three months.

UTERINE DISPLACEMENTS.

General Considerations.—Tait²⁶_{Feb. 1} is a firm believer in the theories propounded by Arthur Johnstone, that the uterus is a temporary gland, just as is the thymus gland, and that its size varies with its functional activity. He finds that downward displacements almost always occur in the poor, namely, in women who get up too soon after labor. In backward displacements the

uterus was usually large and heavy; the labor had been a difficult one, and the patients, as in the previous class of cases, had, perhaps, gotten up too soon. For this class of cases he obtains the greatest amount of benefit by employing chlorate of potash in 5-grain (0.65 gramme) doses, dissolved in a few drops of muriatic acid, three times a day. The traumatic form of backward displacements are entirely relieved by mechanical support. In cases of small atrophied uteri, anteflexed or anteverted, in which there is great pain during menstruation, much relief is obtained by the long-continued use of iron in small doses, viz., 3 to 4 drops of the tincture of the chloride of iron in an ounce (30 grammes) of infusion of quassia. Banga²⁷_{Jan.} states that displacements *per se* are rarely the cause of the symptoms that we find, which may all be explained by other conditions, which a careful examination will always reveal, and, therefore, his treatment is applied to these conditions and not the mere rectification of the displaced uterus.

In a total of upward of 9000 gynæcological cases, Madden,²²_{June} found displacements as follows: Prolapsus or procidentia, 302; retrodisplacements, 356; anterodisplacements, 226; inversions, 2.

Retrodisplacements. — Johnson-Alloway²⁸²_{Nov., '91} reports fifty-two cases of retroposition treated by shortening the round ligament. He does not open the canal, but makes traction on the fascia covering the external opening, until he sees the ligament as it splits to form the fascia. It is then drawn forward, and two silk-worm-gut sutures are passed, including the pillars of the ring and the ligament. Tricot¹⁹⁴_{June} always obtains satisfactory results by employing the Alexander method in cases in which the retroversion depends upon atony of the ligaments, but in all cases an operation should also be performed for prolapsus, which generally accompanies this condition. Herrick¹¹²_{Aug.} considers the Alexander operation as "bad mechanics," and believes that, if nature had intended supporting the uterus by a ligament attached to the fundus, then the round ligament would have been inserted into the anterior abdominal wall, near the umbilicus. He thinks that we should devote our attention to the utero-sacral ligament, and therefore operates by suturing the cervix to this ligament with silver wire, drawing the cervix upward and backward, as in Schücking's operation. During the past two years he has operated successfully in this way twenty-three times, using two deep sutures. Küstner¹¹³_{No. 10} recommends

Schultze's method, or laparotomy, in preference to Brandt's method, for the cure of retroflexions with adhesions, stating that the latter occupies too much time. If laparotomy be performed he breaks up the adhesions, and if the patient be young he merely introduces a pessary; but if near the menopause, he performs ventro-fixation. Von Swiecicki⁸⁴_{June 18} recommends opening the vaginal vault, packing it with sterilized gauze soaked in alcohol; this keeping the uterus in position and setting up aseptic inflammatory adhesions.

Chaput³_{No. 17} summarizes the treatment as follows: (1) simple retroflexion requires no treatment; (2) retroflexion, complicated with metritis and prolapsus, is best treated by curetting and repair of the pelvic floor; (3) Alexander's operation is often difficult, and sometimes fails to keep the uterus in its normal position, or, if the organ be anteverted, the symptoms are not relieved; (4) ventro-fixation is preferable to the latter operation, since the surgeon is not only sure that he has replaced the uterus, but he is not able to remove the adnexa, which are so frequently diseased.

A new method of treatment is described by Mackenrodt,⁶⁹_{June} called by him vaginal fixation. The uterus is drawn down by means of a bullet-forceps fastened to the cervix; the antero-vaginal wall also clasped with a forceps and elevated. A sound is introduced into the bladder, and its deepest portion ascertained. At this point a bow-shaped incision is made into the tissue of the cervix; then, from the urethral prominence, a straight median incision is made, meeting the first incision. Flaps are dissected away on each side. The bladder is then pushed away from the cervix as far as the excavatio vesico-uterina. Then, beginning about on a level with the os internum, stitches are inserted (Mackenrodt generally employs silk), including the two flaps and the uterine tissue (bringing the flaps together). Before introducing these sutures, he brings the tissues—where the bladder has been pushed away—together by means of deep catgut sutures, so as to lessen the space, stop hæmorrhage, and to prevent pocketing. The balance of the wound is closed with catgut, as in colporrhaphy. The silk ligatures are retained from three to four weeks. If the anterior vaginal vault is shortened, then the anterior vaginal wall is incised as in colporrhaphy. A piece is removed, the bladder is pushed away from the cervix, and the incision united to the wall of the cervix, thus lengthening the vaginal vault materially.

Ventro-fixation.—This method is highly commended by Spaeth, ³⁴_{July 5} who, after trying all other methods, finds it the most satisfactory. He employs two sets of silver sutures, after the plan recommended by Schede, Kümmell, ⁴¹_{June 20} Engstrom, ⁴⁹_{Feb.} and Batand. ¹⁴⁸_{Apr. 25}

Prolapse.—Esquerdo ⁶³²_{pp. 370, 371, '91} has studied this subject from a pathologico-anatomical stand-point, and formulates the following conclusions: 1. The prolapsed uterus must be replaced, not on account of the disturbances produced in the uterus itself, but because of those produced by the various methods employed to keep it in place. 2. The treatment should be palliative as long as no disturbances are produced; but, when the patient's health is affected, the treatment must be curative. 3. Non-operative measures are only palliative, and rarely effect a cure, and, if so, only by chance. 4. Operations on the vagina only cause a temporary cure. 5. These operations are only useful when the infra-uterine ligaments are the principal ones affected; when the supra-uterine ligaments are involved, the effect is only transitory. 6. Amputation of the cervix must be considered merely as an accessory operation, whereas the total removal of the uterus is useless, and may result in a vaginal hernia. 7. The most rational and effective operation is hysteropexy. 8. In order to perform this operation successfully, a broad adhesive surface must be made between the abdominal wall and the uterus. 9. This operation not being without danger, it must be confined to those cases in which other methods have failed. Gelpke ²¹⁴_{Aug. 15} describes a modified Hegar's operation, in which the shape of the incision is similar, but no denuding is done (as in Tait's), the flap being merely pushed up and the stitches introduced.

A rare case of chronically inverted and prolapsed uterus is described by Forster. ⁹⁹_{July 14} It occurred in a patient 66 years of age, mother of seven children. The uterus had protruded between the thighs for two months, and examination showed it to be completely inverted. Rest in bed and treatment of the erosions caused the inversion to disappear in two and a half weeks. A large bilateral tear of the cervix was then sewed up, and, later, the torn perineum. The cure was perfect.

FIBROMATA.

General Considerations.—In fifty autopsies, in which uterine fibroids were present, and in which neither castration nor supra-

vaginal amputation had been performed, Bulius¹³_{Aug. 15} examined the ovaries, which were first hardened in Müller's fluid, then in alcohol, and then imbedded in celloidin. He found them to be markedly affected. Microscopically, there was an enlargement, especially in the width, this being due in part to an increase in the number of follicles, varying in size from a pea to a bean, to the presence of cysts, or to an increase of the interstitial tissue. Microscopically, the principal changes consisted in a thickening and increase of the stroma, this often containing a small-celled infiltration, and causing changes in the vessels. The latter were increased in number, their walls thickened, and with a narrowed lumen. The changes in the follicles consisted at times in a small cystic degeneration, but most often in an early destruction of all the follicles, the primordial follicles disappearing almost invariably. A large number of corpora fibrosa were also to be found. Homans⁹⁹_{June 9} describes fibroids as aggregations of normal uterine tissues, in abnormal situations and masses, varying in size from a mere dot to masses of fifty or more pounds (about 25 kilogrammes), growing slowly, and being very common. Operations for their relief are rarely necessary. Homans has only operated in 11 per cent. of all of his cases. An operation becomes necessary when they threaten life by hæmorrhage, when their weight becomes unbearable, when they alter the figures of young women, when they cause serious obstruction to circulation, obstruction to bowels, or when pedicle or uterus becomes twisted. Death due to hæmorrhage is very unusual. Solid fibroids are seldom adherent. The fibro-cystic variety is rare, Homans having met with only eight in five hundred and twenty. Ninety per cent. of all cases of fibroids remain stationary after reaching a certain size, and after the menopause they become cretaceous and atrophy. As regards treatment, ergot alone is ineffective, but, combined with curetting, it stops the hæmorrhage. Apostoli's method sometimes controls the hæmorrhage, always relieves pain and gives the patient more strength, but rarely affects the size of the tumor. In four cases Homans removed the ovaries, but he considers this method unreliable. Curetting, followed by the application of iodine, often cures the hæmorrhage. The surgical treatment consists in the removal of the tumor with or without the uterus. Johnson²³_{Feb.} finds that fibroids grow much more frequently after the menopause than is generally supposed, and

draws conclusions as follows: 1. That the "rule" of text-books, that uterine fibromata cease to grow after the menopause, has many more exceptions than is generally supposed. 2. That *when* they continue to grow after the menopause, they pursue a more disastrous course than before. 3. They more frequently become cystic, calcareous, or have abscesses develop in them. 4. These conditions, requiring operation, according to well-known rules of surgery, the patients are in a less favorable condition for recovery than before the menopause. 5. If the above conclusions are admitted to be true, it must follow that they furnish additional indications for more frequent and earlier resort to the radical operation.

In the hands of the best operators, in cases where a pedicle can be secured, the mortality of supra-vaginal hysterectomy is rapidly approaching that of ovariectomy.

Prochownick⁶⁹_{Feb. 11} reports four interesting cases of uterine myoma, the patients all having had syphilis, their condition being improved as soon as they were placed upon antisyphilitic treatment. The pains and hæmorrhage ceased and the tumors diminished in size. In trying to establish an etiology, he finds that there are no positive grounds, since many patients have fibroids in whom syphilis can be absolutely excluded, and there are many syphilitic patients who never develop fibroids.

Treatment.—The treatment of uterine tumors in general is discussed by Reed,¹⁰⁰³_{Dec., '91} who concludes as follows: 1. All persistently hæmorrhagic uterine myomata, of whatever variety, should be advised to early operation. 2. In young subjects, with multinodular tumors, giving rise to alarming hæmorrhage, the appendages should be removed, when practicable, as an alternative for total extirpation. But the latter operation should be done whenever the character of the growth will permit of its removal by dangers less than those which would be involved by its continued existence. 3. To those tumors already recognized as demanding operation should be added those of uterine development that are liable to dangerous constriction by the uterine walls, and in which their destruction by this means might induce sepsis. 4. All cases of subserous growth, indolent, yet progressive in character, in which the tumor has become a menace to neighboring organs, should, whether hæmorrhagic or not, be advised to exploratory incision,

with reference, first, to removal of the appendages, or, second, of the neoplastic organ. 5. All growing tumors occurring in women beyond the menopause should be removed, if possible, by vaginal total extirpation, or, if that be impracticable, by abdominal section. 6. All distinctly-operable cases, demanding interference, should be advised to submit to operation at the earliest practicable moment.

Ephraim Cutter^{663 Sept.} believes in a carefully-restricted diet in cases of fibroids, and gives his patients the appended list of what to eat and what to avoid:—

DIET. LIST OF FOOD ALLOWED.

Beefsteak.	Pigeons.	Pear.
Sirloin steak.	Squabs.	Melon.
Porter-house steak.	Milk.	Nuts.
Roast beef.	Butter.	Irish moss.
Corned beef.	Eggs.	Fish, salt and fresh.
Cold-pressed corned beef.	Cream.	Fresh and Oregon
Smoked and dried beef.	Cheese.	salmon.
Beef tongues.	Vegetables, without	Cod.
Tripe.	or with little	Haddock.
Ox-tail soup, without pota-	starch.	Eels.
toes.	Tomato.	Soup.
Veal.	Onion.	Perch, etc.
Calves' feet and head.	Lettuce.	Scallops.
Pork, fresh, salt, and	Dandelion.	Oysters.
corned.	Parsley.	Shrimps.
Pigs' feet and head.	Cowslip.	Halibut.
Sausages, properly made.	Radish.	Trout.
Ham.	Horse-radish.	Sword-fish.
Mutton.	Cranberry.	Cusk.
Lamb's tongues.	Turnip.	Lobsters.
Cucumbers.	Rhubarb.	Clams.
Venison.	Squash.	Tongues and sounds.
Turkey.	Carrot.	Cabbage.
Game.	Pickles.	Celery.
Chicken.	Sour fruits.	Spinach.
Geese.	Apple.	

FOOD TO AVOID.

Starches and sugars.	Doughnuts.	Sweet potatoes, etc.
Common white flour, in	Puddings.	Arrowroot.
all and every form,	Gruels.	Sago.
viz : bread, biscuit,	Potatoes, any shape	Tapioca.
cakes of all kinds.	or variety.	Candy.
Crackers.	Corn-starch.	Rice, etc.
Wafers.		

Allen^{222 Nov., '91} does not believe that electricity has much effect upon the size of uterine fibroids, but it relieves pain and controls hæmorrhage. He finds that it acts best in cases of small fibroids,

accompanied by pain and hæmorrhage. He recommends the removal of the ovaries for the relief of the hæmorrhage. He furthermore recommends the removal of rapidly-growing tumors occurring in women five or ten years before the menopause. In operating he employs the elastic ligature, amputates the uterus and drops the stump back into the peritoneal cavity. Raymond⁶⁷_{Aug.30} treats the fibroids by removal of the ovaries. His conclusions are as follow: (1) total disappearance of uterine fibroids can be obtained by castration; (2) in small and medium-sized fibroids castration should always be attempted, especially when there is a great deal of pain and hæmorrhage; (3) in large fibroids castration should be tried first, as hysterectomy can always be done later on, if need be; (4) fibroids with small pedicles are not benefited by castration; (5) the disappearance of the tumor takes place slowly until menstruation ceases, after which it goes on rapidly.

As regards operative treatment the controversy still rages, some favoring intra-peritoneal, others extra-peritoneal, and others vaginal enucleation. Reeves²²_{Dec.9,'91} favors the intra-peritoneal; McColl¹⁰⁰³_{Jan.} believes that, except in a few cases, the extra-peritoneal method should always be adopted; and Chrobak¹³_{Aug.15} prefers vaginal enucleation as the "early operation" in cervical, submucons, and interstitial myomas, when the uterus is movable and easily drawn down. The uterus must be fully dilated before attempting it. He states that, on the other hand, when the tumors are multiple, subserous, or when the adnexa are diseased, then the operation is contra-indicated.

Supra-vaginal hysterectomy is recommended by Baldy⁷⁶⁰_{Dec.26,'91}; Baker¹_{Nov.14,'91} and Smyly⁴⁹_{May}; whereas, the abdominal operation is recommended by Martin¹⁴⁷_{July}, Byford⁷⁷⁹_{Dec., '91} and Heywood Smith⁶_{Feb.20}. Martin advises treating the pedicle by vaginal fixation, for the following reasons: (1) hæmostasis is perfect; (2) the pedicle is fastened extra-peritoneally without changing its location, and without distorting other organs; (3) vaginal drainage of the pedicle is perfectly provided for; (4) all raw surfaces are shut out of the peritoneum; (5) the key to the arch of the pelvis is preserved; (6) the abdominal wound is perfectly closed over a normal abdominal cavity; (7) primary recovery insures a permanent cure, free from harassing sequelæ.

Byford believes vaginal fixation much preferable to the intra-

peritoneal method and better than ventral fixation, because of the unnatural position of the cervix produced by these methods and the danger of hernia. Heywood Smith recommends the subperitoneal method, or, in other words, the "intra-pelvic, yet extra-peritoneal" treatment of the stump. He gives the following directions, as do Goffee and Milton: (1) make the peritoneal flaps sufficiently large, as they can be reduced, but not added to; (2) secure, absolutely, every bleeding branch of the uterine arteries,—if possible, separately; (3) lace the whole pelvic peritoneal wound across with an uninterrupted suture of chromicized catgut, using Lembert's stitches over the uterine stump, so that it is entirely sealed with peritoneal covering. He also strongly recommends the use of tincture of matico as a styptic to stop any oozing, in which case he advises the use of a drainage-tube, otherwise not. He does not approve of closing or obliterating the cervical canal.

Ehrendorf ⁵⁷_{July 17} reports two cases of large myoma, complicated by pregnancy. The fetuses not being viable, supra-vaginal amputation was performed. The first patient died twenty-four hours after the operation. The second patient made a rapid and excellent recovery. Another such case is reported by Lannelongue ¹⁸⁸_{July 24} occurring in a woman aged 36 years. The specimen, when removed, weighed nine kilos (about twenty pounds). The tumor reached to the xyphoid, and caused difficulty in respiration, great abdominal tenderness, severe epistaxis, and obstinate constipation. The patient's general condition was bad. On opening the abdomen, the upper two-thirds of the uterus was occupied by a large fibroma, the lower third by a fourth month fetus. The patient made an excellent recovery.

Cysto-myoma.—A contribution to the study of cysto-myomas is given by Balls-Headley, ²⁸⁵_{Feb.} who reports four cases. Microscopically, the tumor is seen as a spindle-celled collection of unstriated muscular tissue, surrounding which, and forming the capsule, is more or less fibrous tissue, with connective-tissue corpuscles. The sac may be formed by the gradual expansion of lymph-spaces, and after the cyst is formed the fluid may continue to be secreted by the cells lining the sac. The growth may be very slow, or the fluid may drain off through the uterus, thus keeping down the size of the tumor.

The tumors are most frequently subserous. In all of his cases

the tumors occurred in the unmarried or sterile. As to diagnosis, they may be mistaken for ovarian tumors, or for pregnancy. In cysto-myomas the uterus is generally elongated, and the tumor usually has a central location. Fluctuation is often very indistinct. Treatment consists in the use of ergot internally or hypodermatics of ergotin. These are of service, but do not cure. The author believes high power of electricity to be contra-indicated. Of operative measures, he describes four: (1) the removal of the fluid by aspiration *per vaginam*, and the removal of the ovaries by Battey's operation; (2) removal of the tumor by "*morcellement*" *per vaginam*; (3) removal of the tumor by laparotomy, and clamping of the pedicle by the extra-peritoneal method (extra-peritoneal abdominal hysterectomy); (4) removal of the tumor by laparotomy, and suturing the stump by the intra-peritoneal method, after Schroeder's plan (intra-peritoneal abdominal hysterectomy).

CARCINOMA.

General Considerations.—Leopold ²¹⁴⁶_{V.4p.108} reports twenty-seven cases of primary carcinoma of the body of the uterus. He divides them into three groups: 1. Commencing degeneration; slight amount of tissue involved. This includes the muscular and superficial layers. 2. More advanced cases. Extension of the disease between the muscular, commencing degeneration in the superficial layers. 3. Disease extending to the serosa and spreading on the surface and interior. He states, furthermore, that carcinoma uteri is always of epithelial origin, the connective-tissue variety not occurring in the uterus; that which we call cancer is an atypical epithelial new formation (Thiersch-Waldeyer). Carcinoma uteri occurs most frequently below the os internum, commencing in the epithelium of the portio, seldom in the epithelium of the cervical mucous membrane. A large majority of the so-called carcinoma colli are carcinoma of the portio. It is not advisable to attempt to distinguish these two classes from each other. The treatment is the same, namely, total extirpation, if possible. Carcinomas beginning in the portio are not as common as is generally supposed. Very frequently, apparent primary carcinoma colli stand in intimate relationship with epithelioma of the portio. In 25 per cent. of his cases, cancer of the portio extended to the os internum. In cancer of the vaginal portion, the mucous membrane of the body is usually in a state of

chronic inflammation. Sarcomatous degeneration he never observed; adenomatous very rarely. In cases of cancer of the portio, the body is very rarely involved; isolated cases, however, do occur. Primary cancer of the body occurs almost always in flat layers, seldom in the form of nodules. It begins with a thickening of the mucous membrane, glandular proliferation, and vascular new formation, producing atypical, epithelial, pampiniform growths and alveoli. The growth takes place upward and downward, causing a gradual dissolution of the muscularis. The epithelial growth takes place in the form of papilli, which are exceedingly vascular. Consequently, it is best to designate cancer of the body as papillary or papillomatous. The term "malignant adenoma" is not a good one and causes confusion. Adenoma means a benign glandular new formation. If it spreads atypically, then dislocation and destruction of the surrounding tissues occur, and then it is no longer an adenoma, but a carcinoma. When the disease in the body has not made much progress, then a microscopical examination of a section which shows atypical epithelial glandular proliferation, the formation of new blood-vessels, and muscular fibres will be the means of making a diagnosis. When, however, much destruction has occurred, the ordinary means (sound and rectal examination) will suffice in cases where the removed section has undergone so much degeneration as to appear in the form of destroyed masses.

Palliative Treatment.—Satisfactory results are reported by Schulz,⁹_{July 16} from the employment of interstitial injections of absolute alcohol in cases of cancer of the uterus. From 15 to 30 minims (1 to 2 grammes) are injected daily. After the injection the vagina is packed with iodoform gauze, and this retained until the next injection is given. The result of the treatment is reduction in the size of the tumor, diminution of pain, and a decrease in the amount of hæmorrhage and secretions. Of twelve cases thus treated, three have been relatively cured, the others improved. This method is particularly applicable in non-operative cases. Hauffner and Schultz,²_{Aug. 13} have treated cases in the same manner, the syringe being five times as large as the ordinary Pravaz. The injections are painful and cause some bleeding, which, however, is easily controlled. Two syringefuls are employed at one sitting. At first, the injections are given daily; later on, the interval is

lengthened. As many as thirty or forty injections were employed. The effect was beneficial: pain was relieved, the amount of discharge and bleeding diminished, and the patient's general condition was improved.

Kaan⁹⁹_{Apr.7} recommends the use of peroxide of hydrogen to wash out the vagina in cases of cancer of the uterus. He uses equal parts of peroxide of hydrogen and warm water, and injects through a soft-rubber catheter, once or twice a day.

Operative Treatment.—The literature of operative treatment of cancer of the uterus has been carefully reviewed by Taylor,²⁰⁰_{Mar.26} and the following conclusions drawn: 1. Infra-vaginal operations should not be performed. The only cases in which it is justifiable are those in which the patient refuses to allow anything more radical to be done. 2. Vaginal hysterectomy is the operation to be selected and advocated in these cases. If this is surgically considered doubtful, and abdominal hysterectomy is feasible, the latter may be substituted. 3. If the radical operation of vaginal hysterectomy is refused by the patient, the high operation of the cervix, followed by the cautery, should be performed.

It should be noted that the strongest advocates of the radical operation are to be found in Europe, especially on the Continent; while the strongest opposition to this operation is found in America, among the advocates of the high operation.

Rossier²¹⁴_{Apr.1} reports 100 cases of carcinoma uteri occurring in Fehling's clinic. Of these 25 were operated upon *per vaginam*, 2 by laparotomy. The other cases had advanced so far as to make an operation impossible. Of the 25, 1 died immediately after the operation, from peritonitis; 8 died from a recurrence of the disease; 4 have had a recurrence, but are still living; 9 have had no recurrence; 1 was just discharged from the hospital; 1 was still in the hospital, and 1 could not be found.

Gusserow⁴_{No.47,91} only operates in those cases in which the uterus is still freely movable. In nine years he has treated 1350 cases of carcinoma and sarcoma uteri. Of these, 67 were total extirpation *per vaginam*; 4 according to the Breisky-Freund method, 3 of these proving fatal. Of the 67 vaginal operations, 7 died of sepsis; 16 have had no return of the disease; 11 died of recurrence; 1 died of pyelonephritis; 11 have had a recurrence, but are still living; 10 have been operated upon within six months, and in

11 no subsequent histories were obtainable. Vander Veer, of Albany,⁶¹_{July 2} divides cases of cancer of the uterus complicated by pregnancy into three classes, as regards treatment: 1. Cases where the disease is confined to the uterine tissue; no infiltration in vagina, bladder, rectum, or broad ligaments, and the uterus has not reached a size incompatible with vaginal hysterectomy, say, up to the end of the fourth month of pregnancy. 2. This series comprises all cases presenting the features of the first series, except that the removal of the uterus by vaginal hysterectomy, because of the late period of gestation, after the beginning of the fifth month, is precluded. 3. This series comprises all cases, at any period of gestation, where total extirpation of the uterus is impracticable.

Regarding the first class, the bringing on of an abortion is not to be recommended. High amputation usually causes abortion, and is even less successful than in the non-puerperal uterus, as regards an ultimate cure. Total extirpation of the uterus is the operation to be recommended, when early, by vaginal hysterectomy; if later, by abdominal section, and at term, if necessary, a Porro operation.

Vaginal Hysterectomy.—This operation is coming more and more into popular favor, and, with larger experience and better technique, the results are extremely gratifying. Janvrin⁵⁹_{July 9} strongly recommends it, not only in cases of uterine cancer pure and simple, but also in those cases in which the vaginal mucous membrane has become involved, but not the subjacent tissue. He gives the course followed by the disease in the following tabulated form: (1) epithelioma developing upon the cervix; (2) epithelioma extending up and into the cervical canal; (3) epithelioma extending up and into the uterine body; (4) epithelioma extending to the tissues surrounding the cervix; (5) epithelioma extending downward upon the vaginal mucous membrane; (6) epithelioma extending downward upon and through the vaginal wall; (7) epithelioma or carcinoma developing primarily upon the endometrium; (8) its extension to the body of the uterus; (9) its extension to the uterine adnexa.

Skene⁵⁹_{July 9} considers the operation indicated when it occurs near to or after the menopause; when the disease begins in the endometrium; when a positive diagnosis has been made; when the

vagina and tubes are not involved to any extent, and before necrosis has begun. The sweeping statements made by Tait with reference to this operation are strongly condemned by Cushing.²⁰⁶⁵ He reports thirty cases treated by himself. Of these, fifteen are living and well. He employs the ligature similar to Olshausen, but does not close the wound in the roof of the vagina, securing drainage by means of iodoform gauze.

The results of vaginal total extirpation of the uterus for cancer and sarcoma, in Olshausen's clinic, are classified by Krukenberg.²³ From May 17, 1880, to April 30, 1891, the operation was successfully performed (as regards primary results) 239 times. From May 1, 1887, to May 1, 1891, there were 186 total extirpations performed, and only 19 supra-vaginal amputations. The total extirpation was never performed as a palliative measure, for relapse always occurs and the operation appears to shorten the patient's life. His method of preparing the patient for the operation is vaginal douche of 1- or 1½-per-cent. solution of lysol; all gangrenous and friable tissue removed by the curette, then scorched with a Paquelin-cautery or swabbed with a concentrated solution of iodine or an alcoholic solution of bichloride (1 to 500). There are four steps in the operation: (1) incision around the cervix; (2) separating the uterus from the surrounding tissues without cutting; (3) securing the broad ligament; (4) the treatment of the wound in peritoneum and vagina, and the stumps of the ligaments. The stumps are secured with ligatures, not clamps, and the material employed is large-sized, juniperized catgut; the ligatures should be very long and knots tied triple. The stumps of the broad ligament are brought down and sewed into the vaginal wound, the entire wound being closed with continuous catgut sutures. Subsequent treatment consists in liquid diet for the first five days. On the fifth day the bowels are opened by an enema or castor-oil. The patients are allowed up on the fifteenth or sixteenth day. Results are shown by the following statistical tables:—

In the 1st year, out of 200 cases, 82, or 41.0 per cent., suffered from recurrence.

"	2d	"	"	88	"	22,	"	25.0	"	"	"
"	3d	"	"	47	"	6,	"	12.7	"	"	"
"	4th	"	"	28	"	2,	"	7.1	"	"	"
"	5th	"	"	9	"	1,	"	11.1	"	"	"

After the end of the 1st year, 110 out of 188 cases, or 58.5 per cent.							
"	"	2d	"	63	"	141	" 44.7 "
"	"	3d	"	42	"	112	" 37.5 "
"	"	4th	"	28	"	88	" 29.5 "
"	"	5th	"	9	"	51	" 17.6 "
After the end of the 1st year, 186 out of 320 cases, or 58.1 per cent.							
"	"	2d	"	125	"	264	" 47.3 "
"	"	3d	"	86	"	230	" 37.4 "
"	"	4th	"	60	"	200	" 30.0 "
"	"	5th	"	36	"	149	" 24.2 "
After 1 year, of 25 cases of carcinoma corporis, 18, or 72.0 per cent.							
"	2 years, of 15	"	"	"	"	13,	" 86.0 "
"	3	" 12	"	"	"	9,	" 75.0 "
"	4	" 10	"	"	"	7,	" 70.0 "
"	5	" 5	"	"	"	4,	" 80.0 "
After the lapse of 1st year, out of 6 cases of sarcoma corporis, 2, or 33.3 per cent.							
"	"	2d	"	5	"	2,	" 40.0 "
"	"	3d	"	4	"	1,	" 25.0 "

Gusserow⁴¹_{Sept.8} advises vaginal hysterectomy in all cases of malignant disease of the cervix or body of the uterus, but when the disease has spread beyond the uterus he does not perform the operation. He urges the great importance of an early diagnosis and an early operation, as does Boldt,⁷⁶⁰_{Apr.30} who reports thirty-six cases treated in this way, of which nine have died, and in eight of which there has been a recurrence of the disease.

Terrier and Hartmann⁹¹_{Apr.} describe eighteen cases thus treated and also give the results of eighteen cases which were published in 1888. In each set of cases the immediate mortality was 23.5 per cent. In the second or later series, one died of shock and two of peritonitis, one died on the fourteenth day as a result of phlebitis. Of the first series, two were in good health, one after six years and four months, the other after five years and four months. In eight cases recurrence took place after intervals varying from six weeks to two years. Five of the second series were living after intervals varying from three years and five months to eight months. Two, however, showed evidence of return of the disease in the cicatrix. These results show that about 30 per cent. are apparently cured by the operation.

Chaput¹⁹⁴_{No.1} proposes the following plan in order to enlarge the vaginal orifice in performing vaginal hysterectomy and for vesico-vaginal fistula: An incision is made on one side of the vulva, by transfixion, starting from the vulva and running toward the tuberosity of the ischium for a distance of four or five centimetres. A

vaginal incision is made on the same plane as the external one and extends for five centimetres into that cavity. As soon as the incision has been made the hæmorrhage is arrested by transfixion and the operation proceeded with, and when completed these incisions are sewed up with catgut. If performing it on one side does not give sufficient room, the same thing may be done on the opposite side. The wound always heals nicely. When this has been done on both sides, the vulva presents a diameter antero-posteriorly and transversely of from ten to fifteen centimetres. The same author, ³_{Aug. 31} after performing vaginal hysterectomy, introduces a non-perforated drainage-tube through the abdomen, having made a small incision (one to two centimetres) into the vagina, and washes out the vagina through this tube several times a day, at first every six hours, later, every eight hours. The lower end of the tube is prevented from slipping into the abdomen by having a Péan forceps clamped to it. He claims excellent results by this method. Successful cases of vaginal hysterectomy are reported by Gray ²¹³_{June} and Tannen, ⁴⁹_{May} who gives the statistics of the Breslau clinic from June 1883 to November 1889, including one hundred and six cases. In the first sixty-three cases the mortality was 11.6 per cent., in the last forty-three cases it was 6.9 per cent. In the first series two deaths were due to ligation of the ureters, two to sepsis, one to iodoform poisoning. In the second series there was only one death from sepsis; $47\frac{4}{10}$ per cent. had no return at the end of three years, and several none at the end of six years. Tannen finds that the disease usually re-appears in the pelvis and not in the cicatrix, and usually recurs within one year; the average time being seven months. Others recommending the operation are Frederick ¹⁰⁰³_{Apr.}; Carstens, ¹⁰⁰³_{May} who advocates using the clamp, and who has devised a special one; Schopf ⁸_{No. 45, '91}; Braithwaite, ²_{Feb. 13} who reports twelve cases of vaginal and four of supra-vaginal hysterectomy, he favoring the former method; Martin ⁶⁹_{June 30} often finds it necessary to perform colporrhaphy in addition; Broome ¹¹⁷_{Dec., '91}; von Preuschen, ³⁴_{June 7} who reports a case of myoma removed by this method, in which carcinomatous degeneration of the body of the uterus had begun to take place; Goodell, ⁹_{Dec. 5, '91} Bevil, ¹⁰⁹_{Dec., '91} and Cordier. ²³_{June}

Hochenegg ⁸_{June 15} describes a new operation for the extirpation of the uterus. It is a modification of the Kraske operation. The incision through the skin is made in the median line, beginning

one centimetre above the sacro-coccygeal articulation and extending down to the anus, then toward the left, and terminating upon the perineum directly in the median line. In the upper portion the tissues are divided down to the bone, lower down they are only divided to the peri-rectal cellular tissue, and at the perineum the skin alone is cut through. The coccyx is then enucleated, and the rectum pushed away on the left side, whereas in front, and on the right side, it is not disturbed, this bringing us down to the posterior vaginal wall, the left side of which can be readily separated. The blade of a long scissors is then passed into the vagina, and the vagina incised through its entire length. This gives an excellent view. A retractor is inserted into the vaginal wall, and it and the rectum are drawn over to the right. Then the rectum is separated from the posterior wall of the uterus, and the *cul-de-sac* of Douglas is opened. This lays open the entire field of operation; the hæmorrhage is slight, the wound sufficiently large to extirpate the uterus, and even the ovaries, if necessary. After extirpation, the peritoneal wound is closed with buried sutures, the vagina sewed up, the rectum pushed back into position, and the external wound either tamponed or drainage inserted and the wound sewed up. After-treatment consists in having the patient lie on her back with her hips elevated.

The Kraske operation has been performed by Montgomery ²⁰²_{Feb. 25} three times, for carcinoma uteri involving the vagina and rectum, and the results have been satisfactory. He does not recommend the operation when the uterus can be removed *per vaginam*.

Carcinoma of the Cervix.—Currier ¹_{Mar. 12} advises a provisional amputation in cases of suspected carcinoma, thus making the diagnosis positive. He gives the following conditions which may render the diagnosis difficult: (1) endometritis, with or without hæmorrhage from the interior of the uterus; (2) hyperplasia, with or without fissure of the os and endometritis; (3) erosions, ulcers, and glandular disease. A simple method of diagnosing cancer of the cervix is given by Laroyenne, ²⁴who states that if some of the tissue can be scraped away with the finger-nail, then the diagnosis is established. Chase ¹⁵⁷_{Mar.} states that in all cases of cancer of the cervix there exists a previous laceration, but that if the laceration be repaired cancer never occurs. This fact is strengthened by its rarity in virgins as compared with child-bearing women.

Vander Veer²³_{Aug.} classifies the treatment of cancer of the cervix, associated with pregnancy, as follows: 1. Cases where the disease is confined to the uterine tissue; no infiltration in vagina, bladder, rectum, or broad ligaments; uterus has not reached a size incompatible with vaginal hysterectomy, say, up to end of fourth month of pregnancy. 2. Cases presenting the features of first series, except that removal of uterus by vaginal hysterectomy, because of late period of gestation, after beginning of fifth month, is precluded. 3. Cases at any period of gestation where total extirpation is impracticable.

PELVIC CONNECTIVE TISSUE AND PERITONEUM.

Hæmatocele.—This affection is divided by Madden¹⁶_{Aug.1} into extra- and intra- peritoneal. Tait has shown that intra-peritoneal cases are dependent on ruptured tubal gestation, and may be successfully treated by opening the abdomen. The rupture occurs early, usually in the first or second month. The first symptoms are usually due to rupture of the tube, and are cramp-like spasms in the lower part of the abdomen, with rigors and fixed localized pain, faintness, rapid, thready pulse, and collapse, due to loss of blood. The treatment consists in immediately opening the abdomen and removing the clots. The extra-peritoneal may result from ectopic gestation, or some menstrual disorder, structural abnormalities,—such as deficiency or occlusion of any part of the utero-vaginal tract. The symptoms are hypogastric pain and tenderness, fever, at times amenorrhœa, but usually menorrhagia, and the development of a tumor in the hypogastric or iliac region. The treatment should usually be non-surgical. Madden prescribes:—

R Hydrarg. bichlor.,	. . . .	gr. j	(0.065 gramme).
Potassii iodidi,	. . . .	gr. xl	(2.59 grammes).
Tinct. cinchonæ,	. . . .	℥iv	(120.00 grammes).
M.	Sig. : 5j, t. i. d.		

In discussing hæmatocele, Hellier²⁶_{May 2} puts the following questions: 1. What do we know of pelvic hæmatocele resulting from causes other than ectopic gestation? 2. When blood is effused into the peritoneal cavity, why do intra-peritoneal hæmatocèles result in some cases and not in others? 3. Why do hæmatocèles sometimes suppurate? 4. Should we operate?

Reynier²⁴_{Apr.10} prefers the abdominal incision to the expectant

plan, or to the vaginal incision, in cases of peri-uterine hæmatocele, for it is either due to a ruptured extra-uterine pregnancy or to lesions of the adnexa. The advantage of this method is a rapid cure, as compared to months spent in bed. He opens the abdomen, removes all the blood, and washes out the entire cavity with boric acid and water. He reports six cases thus treated. Stuver⁶¹_{Feb. 13} reports an interesting case of pudendal hæmatocele in a non-puerperal patient, resulting from a fall, and draws conclusions as follows: 1. Pudendal hæmatocele, in the non-puerperal state, is a pathological condition of rare occurrence. 2. It is always produced by falls, blows, kicks, or external violence of some kind. 3. If the effusion is extensive, the tumor should be freely incised, the clots removed, and the cavity thoroughly irrigated with a *reliable* germicidal solution; *this should be used as hot as it can be borne for its hæmostatic effect*. 4. Hæmorrhage should be controlled by tampons, pressure, and such other means as the exigencies of the case may demand.

In a lecture delivered on retro-uterine hæmatocele, Swiecicki considers adhesions followed by bleeding from beneath as necessary to the production of hæmatocele, and states that extra-uterine pregnancy is the most frequent cause; these abnormal pregnancies being usually due to gonorrhœa and previous perimetritis. The treatment should either be expectant or operative. He favors the former. If an operation is performed, then, it should be done by incision *per vaginam*, or laparotomy, rather than by vaginal or rectal punctures. It is indicated when the hæmatocele is large and shows no signs of absorption, after several weeks of expectant treatment, when there are symptoms of septicæmia, or pyæmia, excessive pain, or other unfavorable symptoms affecting the bladder or rectum.

Pelvic Abscess.—Cabot⁹⁹_{May 19} advises the treating of pelvic abscesses through the vagina when they are localized and easily felt. The opening made in the vault should be small, and can be enlarged by means of a dilator if necessary. The cavity is then washed out, and a T-shaped tube inserted, cut short, so as not to protrude from the vagina. Hot vaginal douches are given two or three times a day. When the abscess is hard and high up, and the Fallopian tube is sausage-shaped, then he prefers to perform laparotomy.

Peritonitis.—Two cases of tubercular peritonitis successfully treated by operation are reported by Crofford.^{1003 June} From a study of this subject, he draws the following deductions: (1) tubercular peritonitis is an operable disease; (2) an early operation is of greatest value; (3) the chronic variety offers the best indications for surgical interference; (4) when the primary deposit is in the tubes (which Winckel declares to be in 50 per cent. of the cases), an early salpingotomy will cure the disease; (5) operations later in the disease will frequently prolong life and possibly cure.

ELECTRICITY AND MASSAGE.

In the past year, little has been done that has not already been fully discussed in the *ANNUALS* of 1891 and 1892. McGinnis^{850 Feb.} employs electricity to relieve dysmenorrhœa, and has obtained most gratifying results by its use. In America the gynæcologists are very slow in taking up massage. It is being strongly recommended by Schultz and Olshausen in Germany, and recently the French government sent an agent to study the subject under Brandt. On his return, he brought the most enthusiastic reports of its effects. Maddren^{157 May} employs massage in cases of uterine adhesions accompanied with pain and functional disturbances. Ries^{451 July} made careful thermometrical examinations in the vagina, and concludes that all vaginal gymnastic exercises result in lowering the vaginal temperature. This he attributes to increased radiation of heat from the surface of the body.

DRUGS AND NEW INSTRUMENTS.

Hydrastinine.—This drug has been largely employed during the past year. It is recommended by Abel^{Jan. 13} to control hæmorrhage, especially when used subcutaneously. As its action is slow, it must be kept up for a long time, and should not be used in acute cases. He uses a 10-per-cent. watery solution of the hydrochlorate, injecting from $\frac{1}{2}$ to 1 gramme (8 to 16 minims) into the right or left iliac fossa. In chronic metritis he injects 1 gramme (16 minims) of the solution once a week; in menorrhagia, 1 gramme (15 minims) daily during the period. Czempin^{112 Mar.} employed it in 47 cases of uterine bleeding, with results as follow: In 12 cases of endometritis it controlled the hæmorrhage very quickly, while in the others it checked it and diminished the quantity. He

employed it as a palliative in 20 cases of chronic endometritis hæmorrhagica. In 19 it gave relief, in 1 case none. Hæmorrhage due to myoma was treated with this drug in four cases, with negative results. In 11 cases of congestive conditions of the uterus, 4 were benefited; so that, of the 47 cases, 26 showed good, 10 fair, and 11 negative results. Emanuel¹¹⁶_{Dec., '91} gives it in capsules, each containing $\frac{3}{8}$ grain (0.025 gramme), four times a day. Six or eight capsules stop the bleeding.

Falk³¹⁷_{Dec., '91} has also experimented with it, and finds that, in metrorrhagia due to myomata, it checks the bleeding, but has no effect on the tumor. It produced a marked improvement in cases of simple hyperplastic endometritis, but, when associated with chronic metritis or parametritis, or salpingitis, it did little good. It lessens the congestion and diminishes the flow, but the trouble returns as soon as the drug is suspended. It acts best, however, in cases of metrorrhagia of a purely congestive nature, not due to a local cause. Here it effects a permanent cure. It acts on other organs besides the uterus, and Falk cites a case of hæmorrhage from the bowels controlled by subcutaneous injection of hydrastinine. In comparing it with ergot, he finds that the latter acts on the muscular structure of the uterus, whilst hydrastinine acts on the walls of the vessels, directly diminishing their calibre, its action, in this respect, differing from hydrastis Canadensis, which acts through the vasomotor centre.

Gottschalk¹¹⁶_{May} uses the hydrochlorate by injecting it into the gluteal muscles or gives it by the mouth. By mouth he gives 0.05 gramme ($\frac{1}{2}$ grain) three times daily. More than this produces unpleasant gastric symptoms. He finds it useful (1) in menorrhagia in girls (without gross pathological change); (2) in cases where the uterus has been curetted, and in excessive hæmorrhage occurring at the following menstrual period; (3) in climacteric menorrhagia; (4) it acts as a palliative in menorrhagia, in irreducible retroflexions, in diseases of the appendages, and in cases of endometritis. [We have been employing tablets containing $\frac{1}{16}$, $\frac{1}{16}$, and $\frac{1}{2}$ grain (0.0065, 0.004, 0.0032 gramme), which are readily taken, are well borne by the patients, and act remarkably well.—L. S. R.]

Ichthyol. — Kötschau,⁴⁰⁴_{N.F., No. 35} Kurz,⁶⁹ and Albertolotti,⁷³⁹_{No. 6, '91} all favor the use of ichthyol. They find it to be an analgesic and a resorbent, and all agree with Freund in believing that operative

treatment should not be resorted to until this drug has been tried. Kötschau gives it by the mouth, *per rectum* in suppositories, by abdominal inunctions, but chiefly by tampons of 10-per-cent. ichthyol-glycerin or pure ichthyol applied to the endometrium. Escher⁶⁷³_{Mar.} reports the results obtained from the use of ichthyol in the hospital service of Howitz. Good results were obtained in cases of chronic oöphoritis and peri-oöphoritis, but not in salpingitis. In two cases a universal eczema was produced, in one case by employing the ichthyolate of soda, and in the other by a combination of ichthyolate of soda and silver.

Niemirowsky⁵⁷_{Jan.17} employed it with satisfactory results in cases of chronic para- and peri-metritis and oöphoritis, using 10-per-cent. ichthyol-glycerin tampons, these to be retained twenty-four hours. After their removal, two warm vaginal injections are given and the tampons renewed every second day.

Thiol.—Nineteen cases are reported by Kurtz,²_{Feb.6} treated with thiol. A 10- to 20-per-cent. thiol-glycerin solution was painted upon the cervix, and tampons saturated with this solution inserted into the vagina. His conclusions from a study of forty-seven cases treated by this drug are: 1. Thiol is an excellent remedy for uterine inflammation and ulcerations of the cervix, inasmuch as (*a*) it brings about a very speedy cure; (*b*) its application never causes the slightest pain or burning; (*c*) neither does it give rise to bleeding from the erosions. 2. The drug is also a very valuable agent in the treatment of chronic peri-uterine exudative inflammations, since (*a*) it induces a rapid absorption of the effusions, and (*b*) relieves sacral and inguinal pain. 3. Thiol has the following advantages over ichthyol: (*a*) It is perfectly odorless; (*b*) its application is absolutely painless; and (*c*) the stains which it makes on the patient's linen can be easily removed.

Dermatol.—Asch⁵⁷_{July 24} employs dermatol in preference to iodoform, but not as a substitute. It possesses drying properties and hastens the healing of wounds under a dry scab; does not irritate the wound; on the contrary, it subdues irritation. It acts best in fresh perineal tears and peri-neoplastic operations, protecting the wounds and ligatures. He finds tampons made of dermatol gauze very beneficial in vaginal catarrh. Its application in cervical ulceration produces a rapid cure; also in cases of intertrigo. Reed⁷¹_{July} uses cimicifuga and gelsemium, 1 drop of each every hour or two,

for the relief of amenorrhœa due to passive congestion and for the lochial discharge after parturition, finding that it also relieves the dragging pelvic pains.

Euphorin has been used by Bergerio⁵⁰⁵_{Apr. 4} in twenty cases of ulcerative cervicitis. Five or six applications showed marked improvement. The drug is used in the powdered form by insufflation, and in a 1-to-3 alcoholic solution. He found that it acted well in some cases of septic endometritis.

New Instruments.—New uterine dilators have been invented by Gardner²_{Feb. 20} and Sloan.²_{Jan. 2} Gardner's dilator works on the same principle as a phimosis dilator. It dilates the canal evenly throughout its entire length, and by a scale on the handle the amount of dilatation can be measured. Sloan's is a modification of the Hegar dilators.

Duke²⁶_{Dec., '91} employs a vulcanite tube for the introduction of boric acid into the uterus in cases of endometritis, and obtains very satisfactory results. He first cures the uterus, then flushes it and applies the boric-acid powder.

Trestrail²_{Jan. 2} has invented an intra-uterine applicator in the form of a syringe with a long nozzle, made like a hollow probe, with numerous small openings one and one-half inches apart. This is covered with cotton and introduced. The solution, which has been previously put into the syringe, is then pressed on the cotton, and then a direct application is made.

Duke²⁶_{June 1} has also invented a uterine repositor, constructed on the principle of a Hodge pessary. He²²_{Jan. 20} has also invented a new form of uterine double tenaculum.

Courtin⁷⁰_{Apr. 24} describes perforated rubber discs which he had made in order to retain tents, etc., in place; these discs varying in size according to the diameter of the vagina. They are put up in antiseptic bottles. The tents fit into the central portion, which is cup-shaped, and the natural elasticity of the rubber holds them in place.

Bonnet¹⁹⁴_{Jan.} prepares antiseptic laminaria tents as follows: He buys pieces of laminaria which have not been prepared, and divides them into various lengths, from six to nine centimetres. Then he washes and soaks them for twenty-four hours in cold sublimate solution (1 to 1000). He then washes them in sterilized water, and allows them to soak for twenty-four hours in naphthol (1 to

1000). Next they are shaped with a knife and dried in an oven, placed in a 5-per-cent. iodoform-ether solution, and kept in this until used.

MISCELLANEOUS.

The use of glycerin for intra-uterine injections, in order to bring on labor, has been recommended by Pelzer.⁴¹_{Sept.9} He employed it in four cases to bring on abortions and in three cases in which there were tardy labor-pains, and in all of these cases the results were most satisfactory. His method is a simple one. A syringe which will hold about 150 grammes is used, and this filled with glycerin, and is attached by means of a rubber tube to a Mercier catheter. The air is forced out of the catheter by injecting the glycerin into it. The catheter is then passed along the posterior wall of the uterus, as high as possible, and then the glycerin is injected. In order to prevent the fluid from running out the hips are elevated, or the woman placed in the knee-chest or Sims's position. Pelzer attributes the effect of the glycerin to its mechanical separation of the membranes from the uterine wall, and also to its chemical property of absorbing water, thus drawing some of the amniotic fluid out of the sac and removing it still farther from the uterus.

Thirteen cases of *uro-genital tuberculosis* in women are reported by Heiberg.²_{Mar.5} In ten the tubes (always bilateral), in seven the uterus, and in four the ovaries were involved. The ages were mostly between 18 and 25, one patient being 63. The fimbriated extremity of the tube is the part first affected. The uterus almost always becomes infected from the tube. Heiberg also reported twenty-two cases of secondary tuberculosis of the female genital tract. Of these, the tubes were affected in fourteen cases, the uterus in ten, and the ovaries in three. Three of these cases occurred in children under 11 years of age. The fatal termination is generally due to a dissemination and a general miliary tuberculosis, and frequently to a tubercular peritonitis. Leclerc²⁶_{Apr.1} observed nine cases of large pelvic tumors, whose size was influenced by attacks of influenza. In all of the cases the tumors increased in size during the attack, and grew very rapidly. He attributes this to the congestion always found in the genital organs during such attacks, and the lowered vitality in cells produced by the prostration.

Strizdred¹¹²_{Sept.} reports four cases of alarming uterine hæmorrhage, which was controlled by hypodermatic injections of atropine. All other methods had been tried, and failed. One-sixtieth grain (0.0018 gramme) was given, and repeated in three hours, and a third injection twelve hours later. Dmitrieff also reported two cases treated in this way, with good results. Mars¹⁶²_{Mar.} reports a case of aneurism of the aorta, probably the result of leeching the cervix. Expectant treatment was used. Krukenberg⁵⁷_{July 17} reports a rare case of death, from an intra-uterine injection of carbolic acid, this producing hæmoglobinæmia and hæmoglobinuria.

An interesting and unusual case is reported by Cramer.⁶⁹_{Aug. 18} A girl of 12 years of age developed a parametritis, evidently the result of fecal impaction and pressure. An abscess formed and broke through into the rectum. After this the girl made a speedy recovery.

Desormeaux¹²⁷_{July 12} reports a case of congenital imperforation of the uterus in a girl of 17½. She had never menstruated, but from her fourteenth year had epistaxis every two months and pelvic peritonitis at 16. The vulva and vagina were normal, uterine neck long and thick, the body being readily felt above the pubis. A sound could be introduced for a distance of four centimetres, where an obstruction was met with. A narrow-blade knife was introduced and this obstruction cut and then dilated. After daily dressing a permanent cure was produced. Bakowski³⁵⁴_{Mar.} reports a rare case of abscess of the uterus, occurring in a woman, aged 65, who had had one child when 22. This was followed by a vaginal prolapse which had never been cured. At 40 there was an obscure history of an abortion, and some pelvic trouble at 45. Her abdomen was distended and tender and a swelling, extending two fingers' breadth above the symphysis, could be felt. A mass the size of a fist protruded from the vulva, which was found to be prolapsed vagina and uterus and which was reduced. The hypogastric swelling corresponded to the uterus. Rest and poultices gave relief. At the end of three weeks a fetid discharge and shreds of stinking material began to come from the uterus, and a fecal fistula was suspected. Two weeks later, the tumor had increased in size. The cervix was atrophied and the os impervious. A sound was forced through the tissues and entered a cavity six and a half inches long. This was followed by an escape of pus mixed

with sloughy pieces of uterine tissue. The cavity was treated antiseptically and the patient recovered in a fortnight. The cause was supposed to be the introduction of germs through cotton plugs which she had placed in her vagina, her fingers being foul from dressing raw hides.

DISEASES OF THE OVARIES AND TUBES.

By E. E. MONTGOMERY, M.D.,

PHILADELPHIA.

OVARITIS.

THE development of ovaritis and the changes produced by it are worthy of serious consideration. Shaw Mackenzie, of London, ²²_{Jan. 1} discusses the subject at considerable length, and we reproduce from his article a cut of the normal ovaries hardened in spirit, and showing a number of irregularities resulting from the cicatrices on the surface. Fig. 1 was removed from a woman 21 years of age, married, regular until married, after which her men-

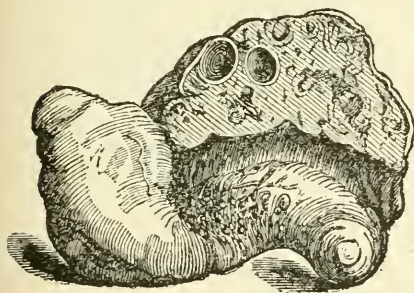


FIG. 1.—FANCOURT BARNES'S CASE. HYPERTROPHIED TUBE. ADVANCED INFLAMMATION OF OVARY.

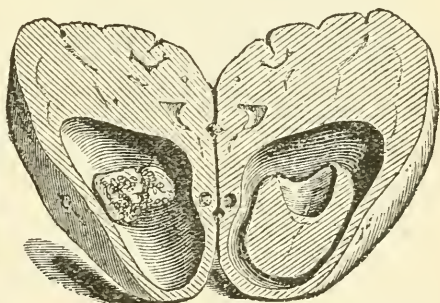


FIG. 2.—FANCOURT BARNES'S CASE. SINGLE CYST OF OVARY.

(*British Gynæcological Journal.*)

struation became irregular and profuse, with pain at times, and hæmorrhage lasting fourteen days; pains unendurable in the right side. This went on for twelve months. Owing to extensive adhesions, there was great difficulty in removing the ovary and tube. Fig. 2 was removed from a woman 21 years of age, married two years, with excessive periods. A cyst of the left ovary the size of a fist was found. The right ovary contained a small cyst, with puriform contents, communicating with pyosalpinx of the tube. Both tubes were hypertrophied, adherent, and contained pus. Every follicle which ruptures helps to destroy its original

(G-1)

smoothness. The minute structure consists essentially of a stroma of connective-tissue elements, loosely made up of small cells and other cells like the interstitial, intertubular cells of the testis; of fibrillæ, which form a dense layer in the cortical part of blood-vessels; and of ovum-bearing follicles, which are limited to the cortical region. The stroma varies constantly: every follicle which makes its way from a deeper part of the surface or which retrogrades, every corpus luteum which is left where interstitial hyperæmia takes place disturbs the stroma and adds its quota physiologically to the already existing connective-tissue elements, so that it is evidently difficult to fix on a given standard ovary. Follicles of the normal ovary are of two kinds: immature, consisting of circular groups of cells; and the more advanced, with

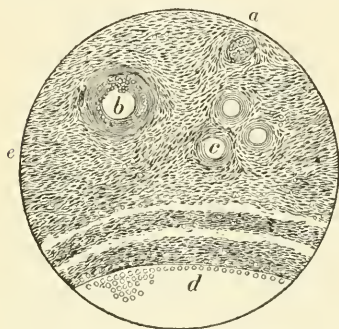


FIG. 3.—CHRONIC INFLAMMATION OF THE APPENDAGES.

a, undeveloped follicle; *b*, hypertrophy of artery; *c*, normal vessel; *d*, follicle with thick walls; *e*, condensed and hypertrophied stroma.

(*British Gynæcological Journal*.)

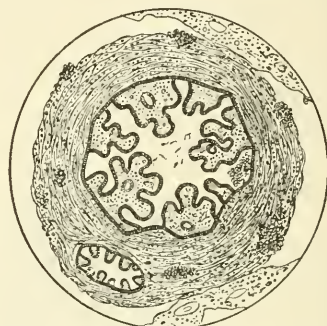


FIG. 4.—SCHACHT'S CASE.

Hypertrophy of tube; epithelium partially destroyed; section of diverticulum; hæmorrhages.

definite walls, and lining the tunica granulosa. A specimen ovary was found enlarged, follicles distended, forming cysts, and, when cut across, appeared as a cup-shaped, firm depression, or as one cup, as shown in the specimen recently exhibited by Fancourt Barnes (Fig. 3). The general consistence was tough and leathery, the surface rough, with firm adhesions, which had matted the organ firmly in the pelvis. The Fallopian tubes were hypertrophied, the fimbria fleshy and lost in adhesions to the ovary. In a case removed by Schacht the tubes contained pus (Fig. 4). Microscopically, the stroma presented: 1. The appearance of a dense tissue of spindle-cells, swollen, large, and closer than normal, which passed into the cortical layer to the surface of the ovary, while numerous inflammatory leucocytes were seen and tracts of fibrous tissue defined. 2.

The follicular walls were thickened, showing fibrous rings, and internal to them a marked zone of inflammatory cells, apparently continuous with the tunica granulosa. The loose, advanced follicles were indistinct, fewer in number, the contents absent or obscured.

3. The vessels were numerous, with thickened walls, some containing blood-clot or *débris*, while new vessels ran to the surface and to the surrounding adhesions.

Of all the terms applied to the inflammation of the ovary cirrhosis is the least desirable. We cannot take cirrhosis of the kidney or liver as a guide, with its pre-cell infiltration and ultimate fibrotic condition. The "raspberry kidney" and "hob-nailed liver" occur in organs which are constantly filtering blood, and are essentially different from the ovary. The author says: "I prefer to study inflammation in the ovary and tube by the light of inflammation as ordinarily accepted in connective tissue. I have no doubt that, in cases of acute ovaritis consequent on sepsis, injury, or gonorrhœa, true cicatricial fibrosis does occur with destruction of tissue in the follicles, producing a small, hard, contracted organ, and to which the term cirrhosis may well be applied. I would submit (1) that, in chronic inflammation, though the tubes may be unable to carry the ovum from inflammatory destruction, there are sufficient follicles to carry on the function of the organ itself; (2) that the follicles, as a rule, do not advance in size, but apparently the walls get thickened and set in the fibrous stroma; (3) that there is no evidence to show that in chronic inflammation the follicular cysts coalesce, or individually get to a size to destroy all the ovarian structure."

Lockhart ²⁸⁴_{Feb.} divides inflammatory processes of the ovary, or ovaritis, into acute and chronic, and the former into follicular and interstitial. In the follicular form the changes are entirely microscopic. In the interstitial, the ovary becomes enlarged. Although constantly found to be enlarged in the early stages, if not removed until later it may present one of three conditions: (1) the abscess may develop and the ovary become largely distended with pus, in which case usually but one ovary is affected; (2) it may be seen as a large, firm, rounded mass, the size of a small orange, and is then falsely called hypertrophy of the ovary; (3) the interstitial fibrous tissue may retract, and so greatly reduce the size of the ovary-walls as to cause fissures of the surface. In chronic

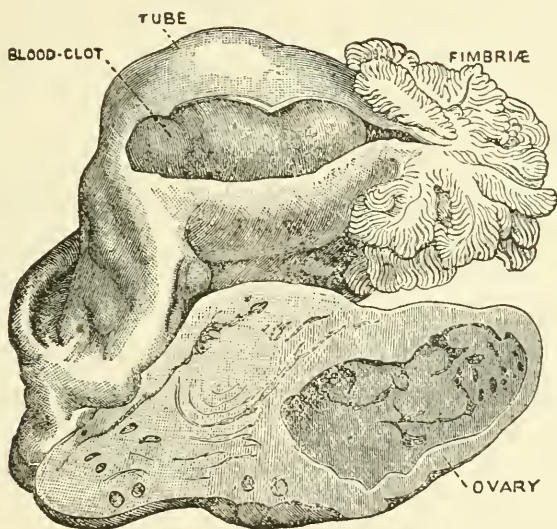
inflammation the ovary is enlarged, loses its almond shape, and becomes more rounded. The acute interstitial ovaritis is usually caused by puerperal conditions, *i.e.*, sepsis, unless slight and localized, and it is usually bilateral. The follicular may follow some of the acute exanthemata, as cholera or scarlet fever, and may be set up by a poison, as arsenic or phosphorus. The chronic occurs most particularly during the period of sexual activity, between twenty and thirty years of age, oftener in married women and prostitutes than in others. It constitutes 5 per cent. of the gynæcological cases.

T. More-Madden, Dublin, ¹⁶Mar. says that acute ovaritis occurs as a result of uterine sepsis or puerperal inflammation, but more frequently than either of these it arises from gonorrhœal infection. The reason why the ovary is more subject to infection from gonorrhœa than the testicle is due to the periodical hyperæmia influenced by accidental, sudden suspension of discharge of blood from the uterus, though occasional causes are exposure to cold soon after delivery; local injuries; acute tubercular disease; the use of emmenagogues and substances employed to produce abortion; the metastasis of rheumatism and other diseases which, in the male, might simply produce orchitis; and, lastly, inordinate or premature sexual excitement, or coition too soon after parturition or too near the menstrual period. Chronic ovaritis is much more common than is usually supposed. In the majority of cases it is the direct sequence of the acute, more particularly gonorrhœal, form of the disease. In some cases we may be unable to trace the complaint to an acute attack, when it may arise from tubercular inflammation of the ovary itself. This was early pointed out by Bernutz. It may result from pelvic peritonitis, and almost invariably suppuration follows. After puncture, pus, or even a part of the ovary, may escape. Evacuation is followed by temporary improvement, the same as that which follows in tubercular orchitis where puncture or incision is made. We may have alternations of improvement and exacerbation, in which the constitution becomes seriously altered. No case is probably more obscure and insidious in its inception than chronic oöphoritis, or less definite in its symptoms.

Galliard ²May 14 reports a case illustrating the influence of the exanthemata. A young woman, 21 years of age, was attacked with

measles ; she had free metrorrhagia and symptoms of general peritonitis, and developed severe pain. She died on the twenty-fifth day. Autopsy disclosed, as the cause of the condition, a small abscess of the right ovary. In the absence of any inflammation of the uterus and appendages, it was considered to be a secondary infection from the measles.

The association of ovarian with tubal trouble is demonstrated by William Duncan, of London, ²⁰⁵¹_{Jan. 12, 16, '91} who reports a case of left hæmatosalpinx with apoplexy of the ovary. The woman was 26 years of age, married six months ; regular for three periods,



HÆMATOSALPINX AND APOPLEXY OF OVARY.

Tube distended with blood and blood-clot. Ovary enlarged. Hæmorrhage into (probably) a greatly distended Graafian follicle.

(*Transactions London Medical Society.*)

then saw nothing for about seven weeks. She had morning sickness, pains in the breasts and lower part of the back. At the end of seven weeks she was seized with severe pains in the left side of the abdomen and back, accompanied by hæmorrhage. A clot was passed, which was not shown to the physician. Under the treatment hæmorrhage diminished, but she still suffered pain ; later, hæmorrhage increased, and, upon examination, in the region of the left Fallopian tube and extending behind the uterus, was a dense, elongated, cystic swelling, about the size of a sausage. Tubal pregnancy was diagnosed. Upon removal, it was found to

be an ovary, enlarged and filled with blood, and a Fallopian tube the size of a banana, also filled with blood.

Robert Bell ²⁰⁶⁷_{Sept., '91} considers cervical disease a most potent factor in disease of the ovaries. He emphasizes the fact that the ovaries may be secondarily affected through the channel of the lymphatics, and refers to Pryor's paper, ²⁷_{July} which states that there are two sets of uterine lymphatics: one surrounding the surface and extending laterally into the parametric tissues along the lower borders of the broad ligaments; the other following the course of the ovarian artery along the upper margin of the broad ligament, and having their origin in a net-work surrounding the corpora lutei. The effluents of the latter consist of two or three large vessels lying between the tube and ovary, receiving numerous branches from these. As valves are comparatively few in these vessels, retrograde infection is not only possible, but probable, and by this net-work of lymphatics septic mischief is conveyed to the pelvic cavity, while salpingitis is invariably the result of the extension of the disease along the mucous membrane of the tubes. The lymphatics of the uterus and those of the tubes are not intimately connected. Pryor demonstrates this by pointing out that the lumbar glands are never affected by tubal inflammation.

Symptoms.—Madden says that the principal symptom of acute ovaritis is dull or burning localized pain on either side, just above the symphysis pubes, increased and extending its area on motion or touch, together with some fullness or tumefaction over the affected ovary. The ovary may be more readily recognized by rectal examination. In chronic inflammation the most constant symptoms are anæmia and hysteria, with imperfect and generally painful menstruation. The significance of these symptoms is only determined by examination, when, by a conjoined or bimanual exploration, particularly of the rectum, the enlarged ovary can at once be detected. In prolapse of the ovary into Douglas's fossa, if the displacement is not soon remedied, it almost always eventually leads to inflammatory changes in the necessarily tumefied and congested dislocated gland.

PAPILLARY CYSTOMA.

Williams, of Baltimore, ⁷⁶⁴_{Dec., '91} says, after careful investigation, he almost entirely rejects the theory of the development of papillary

cystoma from the Wolffian body, and considers the growths to be purely ovarian. They may be derived from the following sources : 1. Graafian follicles themselves, probably the usual point of origin in the development of these growths. According as the membrana granulosa is ciliated or not, the growth will be of the ciliated or non-ciliated variety ; and according as the follicles grow within the folds of the broad ligament or not, the growths will be intra-ligamentous or not. 2. The germinal epithelium. This is the most frequent, and perhaps the only, source of origin for the superficial epithelium, and is probably the most frequent starting-point of the usual form of multilocular cystoma. 3. The tubular epithelium. It is probable that some cases are developed from ingrowths of the epithelium of the tube into a cystoma of the ovary. This mode of origin, however, is not yet absolutely proved.



FIG. 1.—CANCER OF THE OVARY.

(New York Medical Journal.)

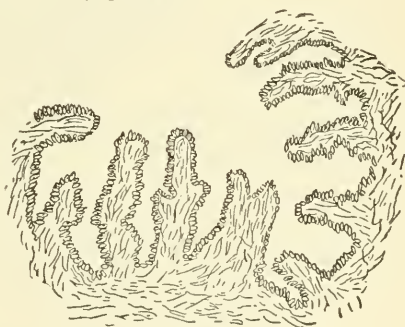


FIG. 2.—PAPILLOMA OF THE OVARY.

The malignant character of these growths is doubted by Stewart Paton,¹ although it is true that the tumors recur. While they begin on the ovary, growths may occur in the uterus, tubes, broad ligaments, bladder, and ovaries, or reflections of the peritoneum. Recurrence takes place by direct implantation, and not by metastasis. There is no more clinical evidence for calling a papilloma malignant than there is for placing the myxo-adenoma in the class of malignant neoplasms. In addition to the negative evidence that ovarian papillomata are not truly malignant growths, more positive testimony is presented in the histogenesis of these tumors. The difference in the mode of development, as seen under the microscope, is very striking, and a carefully-prepared series of sections in relation to the cells of the former and the blood-vessels and the dependence of the new tissue upon the vascular channels

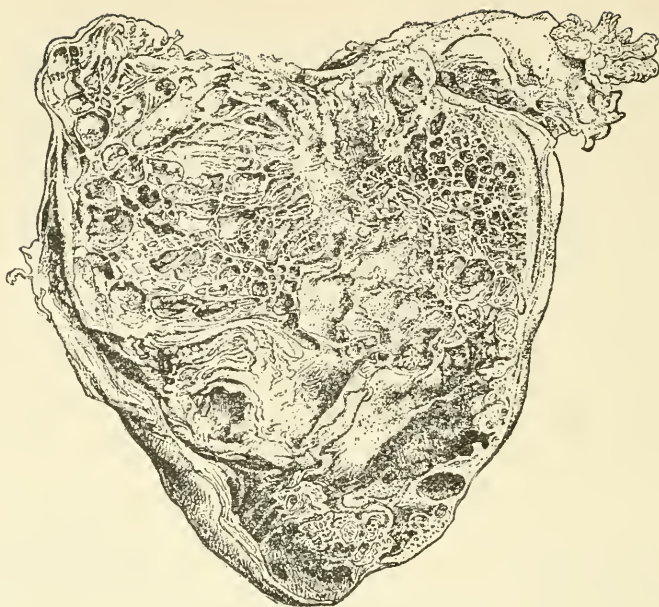


FIG. 1.—TUMOR. CASE OF E. L.

The numerous areolar spaces were filled with colloid material. Size about half of nature.



FIG. 2.—MICROSCOPIC SECTION OF A PORTION OF THE TUMOR, FIG. 1.

It shows the columnar epithelium investing the walls of the areolar spaces and undergoing the usual degeneration, so as to form the so-called "colloid" material.

(*British Medical Journal.*)

for blood-supply will be recognized, *i.e.*, the new tissue is not cut off from its basis of food-supply. In any malignant growth of the ovary or of any other organ the cell-infiltration is characteristic. Each cell may be looked upon as a distinct entity and the process of their development is discrete. Nothing is more trenchantly defined than the absence of the cell autonomy in the growth of a papilloma. In looking over the history of these cases, there is not a single one found in which there has been a return of the disease in the form of a growth of a more lowly organized, but malignant, type. Recent observations have disclosed in a large majority of cases, where the peritoneal cavity has been thoroughly washed and drained, that there has been no recurrence of the papilloma, showing that the development of the implantations which occur in the majority of cases, and which it is often impossible to remove, has been successfully interrupted.

OVARIAN CYSTS.

Hirst, of Philadelphia, ²³_{Feb.} reports a case of ovarian cyst which apparently originated from traumatism; the patient had been struck with the fist over the right ovary two years prior to coming under observation. She was tormented subsequently with frequently-recurring attacks of pain on that side, and an adherent ovarian tumor was found; the cyst was as large as an orange.

Cystic Ovaries.—Kissell ²_{Apr. 2} reported autopsies on the bodies of four hundred and twenty-eight female children, in thirty-nine of whom cystic ovaries were found. The younger the child, the higher up the cystic ovaries were situated. He was not able to explain the more frequent occurrence in children than in young girls.

Diagnosis.—The determination of small ovarian tumors is frequently exceedingly difficult. Doran ²_{June 4} reports two cases of small ovarian tumors which simulated uterine fibroid. In the first case, he was uncertain whether it was ovarian or uterine. The rapid growth favored ovarian tumor, but a fibroid sometimes grows quickly. The close connection of the uterus and the length of the cavity of that organ made every one suspect the growth to be uterine. Operation was done and the tumor was found to be ovarian. A slight amount of ovarian fluid escaped by aspiration. Its interior was semi-solid. The right ovary is seen in Figs. 1 and 2, representing a microscopical section.

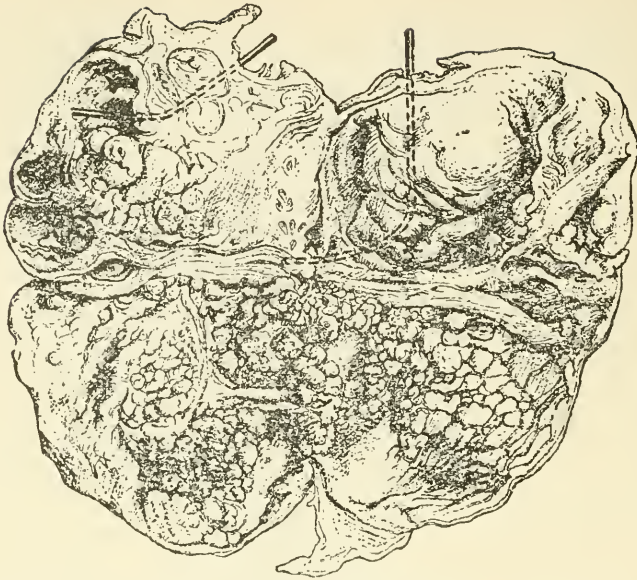


FIG. 3.—TUMOR. CASE OF K. K.

The dilated Fallopian tube is seen cut across. A rod has been passed into each segment, and the course of the tube on the outside of the cyst is indicated by dotted lines. On the left the tube is seen opening into the upper cystic cavity of the tumor. Size one-third of nature.

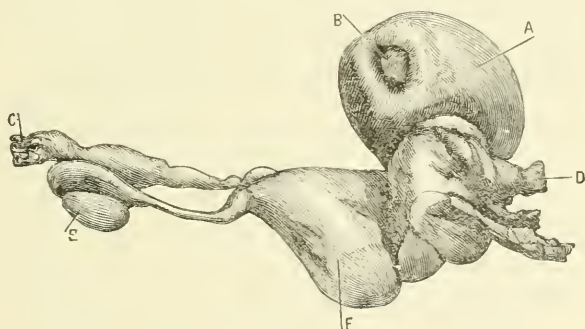


FIG. 4.—MICROSCOPIC SECTION FROM A PAPILLOMATOUS MASS GROWING FROM THE INNER WALL OF THE LOWER CYSTIC CAVITY OF THE TUMOR, FIG. 3.

(British Medical Journal.)

In the second case, the lower part of the abdomen was filled by two firm, lobular growths, reaching close to the umbilicus. The right or, rather, central growth was spherical and movable; the left, oblong, and oval in form. No distinct evidence of fluid could be determined. The cervix was long and free from any growth. Sound passed two inches and a half forward. All movements of the sound were communicated to the left tumor. On opening the abdomen the two swellings, which were apparently separate, on external examination, were found to be simply lobes of the same tumor. Over the right lobe part of the broad ligament was reflected. The aspirator was used, but the fluid was too thick to pass through it. This tumor is shown in Figs. 3 and 4.

Rupture.—Bell, of Glasgow, ²⁸²_{Apr.} reports a case of rupture of an ovarian cyst which resulted in an attack of general peritonitis.



RUPTURE OF OVARIAN CYST.

A, cyst unruptured; B, remains of ruptured cyst; C, left lobe; D, right lobe; E, remains of thin-walled cyst, ruptured when removed; F, uterus.

(*British Medical Journal.*)

The removal of the cyst and cleansing of the abdominal cavity resulted in recovery. Beale, of South Tottenham, England, ²_{Dec. 12, '91} reports the rupture of an ovarian cyst, in an infant 6 weeks old, producing symptoms simulating typhoid fever. An autopsy disclosed the true character of the trouble. The mass removed is represented in the accompanying cut.

Crofford ¹⁰⁰³_{Aug.} reports a case of ovarian tumor, removed from a woman 62 years of age, which weighed seventy-five pounds. She had been tapped seven times. Recovery took place without an unpleasant symptom.

DERMOID CYSTS.

Lott ²²_{Dec. 9, '91} reports the removal of a dermoid cyst in which a perfectly-formed upper maxillary bone was found with a number

of regularly-placed incisor and molar teeth. It also contained a large quantity of blonde hair. The writer removed from a child, 11 years of age, a double dermoid cyst, or a cyst involving both ovaries, including the fundus of the uterus. The cyst was found filled with fatty material, hair, and a well-formed one-half upper jaw, with the rugæ of the roof of the mouth and the teeth of one side. McGannon, of Brockville, ²⁸²_{Feb.} reports a large ovarian cyst, removed from a girl 16 years of age, which contained bone and cartilage. Ashby ⁶¹_{Mar. 12} reports a case of dermoid cyst in a single woman 25 years of age. At one point the cyst contained a small piece of bone, and from this a twist of hair grew, which measured thirty inches in length. Black, of London, ⁶_{Sept. 10} reports a dermoid cyst removed from a child $7\frac{1}{2}$ years of age.

Kufferath ⁹⁰_{Mar.} had a patient in whom a parovarian cyst was opened and its walls stitched to the abdomen; recovery. Four years later she again underwent an abdominal section for a cyst of the broad ligament, in which the operator was obliged to remove the uterus and its appendages, because the cyst was so intimately adherent to it. After removing the cyst, it was found that a part of the right ureter had been also removed. As she seemed unable to bear nephrectomy, the end of the ureter was stitched to the abdominal wall. She recovered, with a continuous flow of urine from the ureter. The writer in a recent case attempted to remove a parovarian cyst; when dissecting it out, he found that the ureter passed over its upper surface. The ureter, however, had only been peeled off from the cyst and remained covered by the peritoneum. The cyst-cavity was packed with gauze and permitted to remain. The patient recovered without injury to the ureter.

Bland Sutton ²_{June 4} states that abdominal cysts may burst into the peritoneal cavity through injury, in consequence of pressure during labor, from axial rotation, or spontaneously. Results vary according to the nature of the cyst. When large parovarian cysts burst, the patient has a sudden and acute pain, followed by disappearance of the swelling. She then begins to pass large quantities of urine. Several reported cases of parovarian cyst have burst, refilled, and burst again, this being repeated several times and only causing temporary inconvenience. In ovarian adenomata the fluid is thick and tenacious,—like mucus. The following is an illustrative case: A woman, 48 years of age, had a swelling of the

belly for two years, which had not caused any inconvenience until a few weeks before she was seen, when it began to be painful. At the same time the belly enlarged rapidly. On physical examination, the tumor did not yield the classical signs of ovarian growth, and there was a peculiar area of dullness in the left loin. A few weeks later ovariectomy was performed, and a large ovarian adenoma, surrounded by several pints of colloid material, was removed. This escaped into the peritoneal cavity through a rent twelve centimetres long in the upper surface of the tumor. The

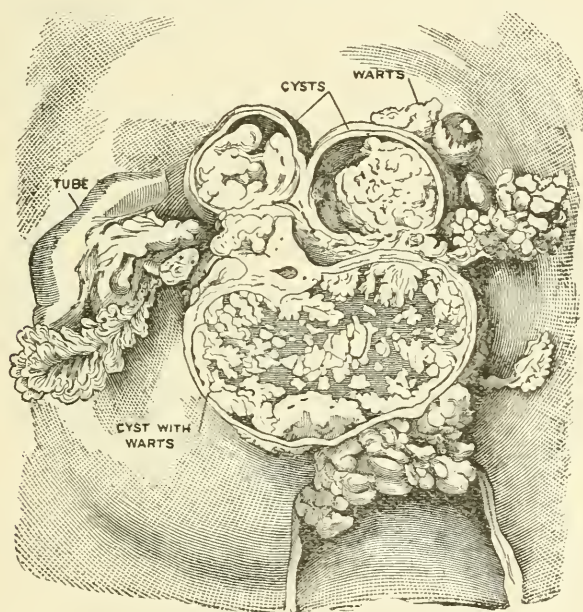


FIG. 1.—RUPTURE OF ABDOMINAL CYSTS.
(*British Medical Journal.*)

woman made an uninterrupted recovery. The free colloid material seems to have no special untoward effect on the abdominal cavity. When papillomatous cysts of the ovary burst, the fluid distributes itself over the peritoneum, and sows broadcast cells detached from the warts between the cysts, which are deposited upon the peritoneum and ultimately grow into warts. In the smaller cysts the warts make their way through the cyst-walls by pressure, and, having protruded therefrom (as in Fig. 1), the emancipated portions grow luxuriously, and the cells on the free surfaces of the walls, detached by the intestines rubbing against them, are dissem-

inated throughout the peritoneal cavity like so much thistle-down over a field of corn. A second, more serious method of dissemination is by the rupture of a large wart-containing cyst. These cysts have a tendency to rupture, the warts growing within so distending the loculi containing them that persistent pressure interferes with the nutrition of the cyst-wall, and causes portions of it to necrose and finally yield, allowing the cell-laden fluid to rush out. Intra-peritoneal rupture of hydatid cysts may be followed by death in a few hours from shock and hæmorrhage. One effect is the development of a hydatid rash over the body, like urticaria; a second effect is the distribution of the brood capsules over the peritoneum, to which they may become attached, and grow upon the omentum and the serous lining of the recesses of the pelvis.

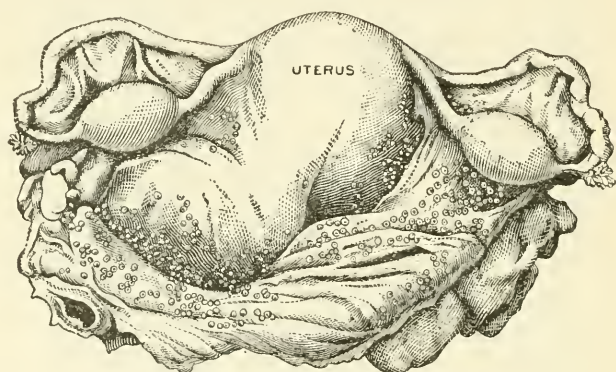


FIG. 2.—RUPTURE OF ABDOMINAL CYSTS.
(*British Medical Journal.*)

Graham ²_{June 4} reports a case in which a woman died of a suppurating hydatid. A cyst in the under surface of the liver had been tapped three months previously. On post-mortem, the spleen, omentum, mesentery, and folds of the ligament (as seen in Fig. 2) were found to be studded with pearly-white, glistening tubercles the size of sago-grains. When ovarian dermoids rupture, the dissemination of the epithelial cells and developing hairs may produce a crop of minute dermoids on the peritoneum. For instance, Kolaczek reports a case in which Martini removed from a single woman, 40 years of age, an ordinary ovarian dermoid as large as a man's head. After the escape of some ascitic fluid, the peritoneum was seen to be studded with small, yellowish knots, many of them with a small tuft of hair which projected into the

peritoneal cavity. The determination of the diagnosis of rupture is sometimes quite difficult. Armstrong, of Detroit, ¹⁰⁰³_{Sept.} reports a ruptured ovarian cyst which so strongly simulated tubal pregnancy that diagnosis was not determined until after the death of the patient. Coe, of New York, ¹_{Jan. 10} reports the removal, from a woman 30 years of age, of a tumor of the ovary which had undergone bony degeneration and not very much enlargement.

OVARIAN HERNIA.

Dor ²¹¹_{Nov. 29, '91} reports a case of hernia in which the sac contained the ovary and portions of the broad and round ligaments. Roersch ²⁹³_{Dec., '91} recounts a case of strangulated hernia of the ovary. Efforts at taxis were made without success. Finally, the patient was operated upon, the ovary being found in a state of gangrene and removed; this was followed by recovery. Maylard, of London, ²_{Apr. 9} also had a patient suffering from strangulated hernia of the ovary in the femoral region. The displacement of the viscera is often marked under the influence of large abdominal growths. Glasgow, of St. Louis, ³⁶⁴_{June 1} reports a case of vertical displacement of the heart by ovarian tumor; the displacement caused a bending of the aorta, which gave rise to a systolic murmur.

TUBAL DISEASE.

Etiology.—The probability of extension from the uterine mucosa to that of the Fallopian tube has long been recognized. T. More-Madden, of Dublin, in a reprint, states that the direct communication of the uterine mucous membrane with that of the Fallopian tubes necessarily results in the transmission of disease from the uterus to the tube. Disease may also be transferred from its free peritoneal extremity or originate within its structure. These diseases are inflammation, or salpingitis and its consequences, —pyo- and hydro- salpinx. The most probable causes of the latter condition are gonorrhœal infection and puerperal sepsis. In addition, the oviduct may be the seat of encysted fibro-muscular and malignant tumors. Acute salpingitis is rarely brought under the notice of the gynæcologist until it has become chronic, which is the most common result of the disease, though it may terminate in cure. Chronic salpingitis may affect one or both tubes, more generally both. Its causes are gonorrhœal, puerperal, or catarrhal

inflammation, and occasionally local, such as tubercular and cancerous deposits.

Fitz, of Boston,⁹⁹_{May 19} believes the most severe pelvic inflammations to be the result of infection of the surfaces of the genital tract from without. The infected material and its products are either carried along the surface from without, afterward to the ends of the tubes and into the pelvis or through the wall, usually through the blood- and lymph- vessels. The pelvic inflammations affect the wall and contents, and inflammation of the former usually results from disease of the latter. These inflammations are simple and ineffective. The former are due to traumatic agents, ruptured cyst, twisted pedicle, prolonged labor, or tumor. The latter are septic, gonorrhœal, or tubercular, the sepsis resulting from bacterial infection under conditions associated with pregnancy and menstruation, or with attempts at diagnosis and treatment, as in the passage of sounds, the use of tents, instruments, and manipulations. Pelvic abscess is usually either a pus-tube or circumscribed peritonitis, the former being far more common than the latter, especially in chronic and recurrent cases. Abscesses of the subperitoneal, fibrous tissue of the pelvis may occur, usually proceeding from the uterus as a suppurating parametritis, and rarely attaining the size to be found in the previous varieties.

Le Dentu¹⁰⁰_{Feb. 27} states that affections of the annexes of the uterus are ordinarily consecutive to uterine disease; exceptionally, infection takes place simply in the tube, glueing up the abdominal end. Thus nature imposes a barrier against the further extension of the disease. That this does not always take place is demonstrated by a case reported by Wertheim, of Prague,³¹⁷_{No. 20} in which the entire peritoneum was much injected and covered in parts with semi-fluid pus. The ostium of the tube was open, and creamy pus escaped from it into the peritoneal cavity. The open ostium accounted for the peritoneal complication. As throwing some light upon the possible cause of pyosalpinx, the following case, described by Witte,⁶⁹_{May 19} is of interest: A patient was operated on at the private clinic of Martin, of Berlin, and specimens examined subsequently, microscopically, revealed the presence of a large number of bacillus lanceolatus (pneumococcus—Fraenkel), in addition to a few staphylococci. Although the pneumococci have been shown to be the cause of various suppurations in different portions of the

body, it is only the third case in which they have been reported to have been found in the pus of pyosalpinx.

The influence of gonorrhœa in the production of tubal disease is discounted by some investigators. Bantock, of London, thinks that gonorrhœa does not play so important a part as is usually estimated in diseases of the appendages. There are other important agents, miscarriage being one of them. That tubal disease is not confined to the menstrual life of the individual is demonstrated by a case reported by Cheadle,⁶_{Nov. 14, '91} who found a tubal pyosalpinx in a child 1 year and 9 months old. No vulvovaginitis was present. The child had died from tubercular disease, there being tubercular consolidation of the lungs, deposits in the liver and right kidney, and the peritoneum studded with the disease. Both Fallopian tubes were found to be coiled and distended with pus, the left more than the right.

Symptoms.—Morison, of Newcastle-on-Tyne,⁴⁹_{Nov., '91} says that the characteristic symptoms of inflammatory diseases of the appendages are: (1) the history of recurrent attacks of peritonitis; (2) hæmorrhage; (3) pain. The most misleading symptom is pain, for the reason that it is not always accompanied by physical evidence of organic disease. It is a safe rule to regard the continually pained, incapacitated individual with surgical suspicion, although operation should be postponed in such cases until there is the most satisfactory physical evidence of gross and active pelvic disease. The physical signs indicating operation are: 1. The ordinary signs of pelvic peritonitis with exudation, possibly in sufficient quantity to obscure all other landmarks. The history is usually one of preceding gonorrhœa, abortion, or confinement. The symptoms thus described cause diseased tubes. 2. Dilated and distended tubes, usually to be felt behind the uterus, and recognized by the rounded shape and elastic feel. The most frequent cause is gonorrhœa. The contents of the tubes are usually purulent. Extra-uterine pregnancy may be the cause, when blood will be found in the tubes. These cases are sometimes mistaken for retroflexion of the uterus. 3. Ovarian enlargement, which may be due to abscess or chronic ovaritis. 4. Displaced ovary, when causing painful defecation, pain upon sexual intercourse, irregular hæmorrhage, and pain on palpation. 5. Some cases of acquired dysmenorrhœa, frequently due to chronic salpingitis. It may be impos-

sible to feel the ovaries and tubes, as they are buried in old adhesions. 6. Some cases where irregular hæmorrhage, illness, and pain result from long-standing inflammatory disease of the uterine appendages. Removal is the only cure. 7. Every case of acute general peritonitis is due to some gross lesion, mostly requiring operative treatment. In women the possibility of rupture of diseased appendages must not be forgotten. Finally, there are cases of ovarian or tubal disease requiring operation or removal; that is, those in which there are definite signs of disease in the pelvis, causing serious symptoms.

With these views Madden concurs, by saying that the most important symptoms of chronic salpingitis are similar to those attributed to perimetritis and parametritis. One of these symptoms is the occurrence of menorrhagia attended with dysmenorrhœa, a condition unaccounted for and not usually relieved by general treatment. The patient complains of a deep-seated intra-pelvic pain, which may become acute and lancinating and shoot out of the sacral and inguinal regions down the thighs; at the same time there may be evidences of constitutional febrile disturbances and pyogenic rigors, and, in some cases, intra-menstrual hæmorrhages or aqueous discharges from the uterus.

A woman with a collection of pus or fluid in the tube is constantly in danger, as is indicated by a case reported by Rochet, of Antwerp, ²⁵⁶_{Nov. 29, '91} in which spontaneous rupture of pyosalpinx occurred in a woman 26 years of age, resulting in death. The inflammation accompanying such a condition usually results in extensive adhesions.

Hinkson, of Blissville, N. Y., ¹_{Oct. 24, '91} reports a case of pyosalpinx in which the adhesions involved the vermiform appendix, bladder, small intestine, and omentum, and in which the mass was successfully enucleated and the patient recovered. The writer has several times seen cases in which the appendix was drawn out to a considerable length and adherent in the mass of exudation, and one case recently in which the appendix was beginning to ulcerate from the presence of a concretion within it.

Hæmatosalpinx.—Hirst, ²³_{Feb.} reports a case of much-dilated tube filled with soft blood-clot, which was removed from a woman who had a rapidly-growing fibromyoma of the womb. There had been no indication of gestation.

Tuberculosis.—Edebohls, of New York, ²⁰⁸⁵₉₁ says that the co-existence of tubal tumor or tumors with plaque-like thickenings of the subperitoneal tissues point with great positiveness to tuberculosis, which, under these conditions, may fairly be assumed to be primary in the tube or tubes, if no other deep-seated tumors can be palpated in the abdominal cavity. For purposes of clinical study, peritoneal tuberculosis may be classified as tuberculosis without and tuberculosis with ascites. In both forms of disease the family history, habitus, age, expression of the patient, condition of the skin, lungs, pleura, and pericardium should be taken into consideration in attempting to reach a diagnosis. The symptoms which he found most infrequent were pelvic pain and distress, mild and irregular pyrexia, and enlargement of the spleen. There is nothing characteristic about tuberculosis to distinguish it on bimanual palpation from other tumors of the tube. The diagnosis may, however, in a certain proportion of cases, be made by exploratory puncture, and examination of any fluid obtained for tubercular bacilli. In dry tubercular peritonitis the plaque-like thickening of the subperitoneal tissues constitutes the most characteristic, almost pathognomonic, sign obtainable very early in the disease. The co-existence of tubal tumor or tumors with these plaque-like thickenings renders the diagnosis still more positive. In the more advanced stages of peritoneal tuberculosis the detection of tubercular tumors among the viscera of the abdominal cavity forms an important aid to diagnosis.

Cancer.—Westermarck and Quensel ³⁷¹_{B.2,H.1} report a case in which the tube was transformed into a solid tumor two inches in diameter. Autopsy, five months after the operation, disclosed cancerous enlargement of the retroperitoneal glands with metastasis in the liver. The disease had evidently originated in the tubal mucosa.

Fibromyoma.—Spaeth ³⁹³_{B.22,H.2} reports the case of a patient from whom he removed a tube containing a true interstitial fibromyoma imbedded in its wall, at a short distance from the uterine end. There were no evidences of chronic inflammation. It is a condition very rarely found in the tube.

Fibroid Tumor of the Round Ligament.—Gross ²²_{Apr.27} says that solid tumors of the round ligament are very rare, and that the point of origin is usually attributed to the uterus. Virchow was the first to affirm that fibrous tumors could be developed directly within

the round ligament. It is very difficult to determine whether the tumors are uterine or juxta-uterine, unless they are pediculated. He recently met a case in which the tumor of the ligament weighed 5 pounds (2 kilogrammes), with its pedicle inserted into the round ligaments on the right side. These tumors developed from the muscular element of the uterus.

Treatment.—Madden gives, as the most effective treatment of tubal disease, the allaying of pain by opiates and the administration of quinine in combination with iodide of potassium or bichloride of mercury. Hot water, vaginal and rectal irrigation, and external stuping are also indicated. He does not believe in blisters or counter-irritants. In the chronic condition, the object of treatment should be the removal of the disease and restoration of the functional and structural integrity of the infected organs, and only when the latter is impracticable should we be content with the former. Among the methods of treatment are: (1) the removal of the contents, whether purulent or serous, of the distended tube by aspiration, as recommended by Routh; (2) the free incision *per vaginam* and subsequent washing out of the empty tubes, as advocated by Sinclair; (3) curetting of the endometrium around the uterine ostium of the tube and Emmett's operation; (4) electricity by the method of Apostoli; (5) what may be termed conservative laparotomy, *i.e.*, abdominal section, with a view either to aspiration of the distended tubes or, as advocated by Alban Doran in some instances, to dragging down adhesions and freeing the diseased appendages; (6) resection of the tube by salpingectomy, or Skutsch's operation; (7) massage, as applied by Brandt. He regards Brandt's method as objectionable. To attempt to empty the distended tube into the uterus by rolling it gently between the fingers of both hands is a manœuvre which, it is admitted, often causes an escape of the secretion into the peritoneal cavity, readily giving rise to symptoms of peritonitis. If the mammary gland becomes the seat of purulent collection, would it not be more advisable to open the abscess than to amputate the breast? Under these principles, the scientific plan of treatment would be to aspirate the pyo- or hydro- salpinx, or to pursue a more radical course, as follows: The patient is placed under an anæsthetic, and in the left lateral gynæcological position. The operator introduces the index and first fingers of his left hand through the

sphincter upward and forward along the outlines of the posterior uterine wall, the fundus being pressed down by his assistant's hand over the hypogastrium. In this way the tubes and ovaries are readily palpated, and any inflammatory or cystic enlargement of the former is distinctly recognized as a tortuous, elongated, sausage-shaped, or rounded, fluctuating tumor, extending outward in the broad ligament and upward into Douglas's fossa. Having determined the position of a pyo- or hydro- salpinx, the next step is to carefully introduce, *per vaginam*, on the point of the right index finger, a long, thin needle, fixed to the aspirator, up to the posterior vaginal *cul-de-sac*, through which it is to be passed into the retro-vaginal fossa, and thence, guided by the operator's left index finger, from the rectum upward to the most prominent presenting part of the tubal swelling, into which it is to be plunged. The contents are then drawn off, the expulsion of which may be assisted by the steady pressure of the assistant's hand from about the hypogastrium down into the pelvic cavity, and continued until the tube is completely evacuated. The vagina should be rendered aseptic by insufflation of iodoform; and no further treatment beyond hot-water irrigation will generally be required, unless the tube should, as sometimes happens, fill again, though probably to a less extent, when the same procedure may be again and again, if necessary, repeated until the oviduct has become reduced to its normal size. The most common immediate cause of cystic accumulation in cases of chronic salpingitis is mechanical obstruction of the uterine orifice of the oviduct, due either to chronic follicular endometritis, flexion, or, in some instances, subinvolution of the uterus. In such cases tubal obstruction is best relieved by dilatation, followed by curetting of the diseased proliferating endometrium, in the first instance; rectification of the flexion in the second, and faradization in the last. The faradic current is preferable in these cases. Apostoli uses that of tension. The removal of the uterine appendages has been adopted as the best method of treating this class of cases by the majority of operators.

Of the ultimate curative results of the removal of the uterine adnexa, however, a hopeful view is not always taken. Thus, Doran observes that, as a rule, oöphorectomy for chronic disease of the appendages is followed by speedy convalescence, but, unfortunately, a permanent cure is not so frequent. Mental symp-

toms occasionally follow tubal oöphorectomy. Occasionally where the stump suppurates they are particularly unsatisfactory. Fistulous tracks open, close, and reopen near the abdominal wound for months, discharging thin pus. Such cases find their way to the consulting-rooms of other hospitals than the institution where the operation is performed. The operator hears no more of them, and he, or the hospital, regards them in perfect good faith as cured. A larger minority suffer from continuance of the pains which preceded the operation.

Baldy, of Philadelphia, ¹⁰⁵¹_{Sept.} believes that abdominal section is not the only treatment for pelvic inflammation and its results. According to Mundé, ²⁷_{July} a slight, more or less inflammatory, enlargement of the Fallopian tube, even though it be entirely detectable, does not warrant its removal until all palliative measures have been tried and tried again without avail. Conservative treatment consists (1) in the palliative, which include measures for the cure of the inflammation, or for emptying of the distended tube without a dangerous operation; (2) those methods which necessitate abdominal section for the purpose of restoring the normal calibre and relations of the tube. Under the first, rest in bed, hot vaginal douches, hot poultices, opium, and antiseptics may be considered; the application of iodine, glycerin tampons, blisters, and douches. The progress is slow.

Madden says that the most serviceable treatment in the sub-acute or chronic ovarian inflammation in the milder cases will be counter-irritation by liniment of iodine or blisters, followed by inunction of oleate of mercury with morphine over the affected gland, together with long-continued use of bichloride of mercury thrice a day, in doses of $\frac{1}{24}$ grain (0.0027 gramme). This may be given to advantage with iodide of potassium in combination with one of the bark tonics. In many of these cases of severe character the only operation is the removal of the ovaries and tubes, bringing about in this way a cessation of menstruation.

In the treatment of these cases it becomes an important question whether we can succeed in avoiding an operation so dangerous as an abdominal section. Nitot, of Paris, ²¹_{June 5} advocates the treatment of pyosalpinx and of encysted salpingitis of small volume by puncture with the aspirator, and immediate washing out of the cavity with an antiseptic solution of sublimate. Eliot, of Wash-

ington,⁸¹_{Apr.} urges passage of the uterine sound, probe, or catheter in preference to abdominal section. Eliot reports a case in which the operation of catheterization of the tube was done and the patient recovered. The woman subsequently became pregnant. Ameiss, of St. Louis,³⁶⁴_{Mar. 1} reports a case of hæmatosalpinx in which the sac was drained through the uterus. In three months a second sac was drained through the uterus, it being then simply fluid.

Boursier²⁵_{May} claims to have "catheterized the left tube in a case where the patient, aged 31, had had two children. This was done repeatedly, with the relief of distressing symptoms. Subsequently, the tube contracted so that the catheterization could not be continued." It certainly seems that cases in which the sound may be safely passed into the tube, thus emptying the accumulation of fluid, must be rare, and, if the tube be so dilated as to permit the sound to be readily passed, one can hardly understand why drainage from it would not take place without the use of the catheter. One can much more readily understand the *rationale* of the treatment of such cases by dilatation and drainage, as described by C. P. Strong, of Boston.⁹⁹_{Mar. 17} In describing the operation, Strong says that the aim should be to render the operation thoroughly aseptic. He places the patient in the Sims position and avoids all downward traction of the uterus; dilates slowly and steadily with steel forceps, until the canal will readily admit a No. 36 sound. He then thoroughly scrapes away, by the sharp curette and curette-forceps, the entire mucous membrane, both cervix and fundus, especially endeavoring to free the opening at the uterine end of the tube, it being at this point that it is frequently occluded by a slight hyperplastic enlargement. He disinfects the uterine cavity, and carries a twisted roll of iodoform gauze, about the size of a goose-quill, to the fundus, and besides this inserts others until the cervical canal is firmly filled, leaving the protruded ends within the vagina, and protecting the vulva by an antiseptic pad. These rolls of gauze must be changed every two or three days for ten days and the patient kept in bed. Operation should be done one week after the menstrual flow. This treatment depletes the tissues about the uterus through the organ itself. While it may not always prove satisfactory in treating intra-pelvic disease, yet it certainly may, in any case, prove an abortive treatment.

The importance of gonorrhœal infection and its proper treat-

ment lead us to present the following quotation from Hulbert, of St. Louis,⁷⁸⁶ who advocates, for the treatment of gonorrhœal infection in women, the use of pyoktanin and boracic acid. After the vagina is thoroughly cleansed with hot water, it is opened with a Sims speculum, and the cavity freely and liberally dusted with a 10-per-cent. mixture of pyoktanin and boracic acid, special care being taken that the fornices and spaces about the cervix are well filled. Strips of carbolic or other gauze are then rather firmly packed in the vagina to the hymen, care being taken not to overdilend the canal. The external genitals are dusted with the same powder, and a compress of gauze applied. If the urethra is involved, it is washed out and a solution of 1-per-cent. pyoktanin applied with a camel-hair pencil, or a cotton-wrapped probe, or a pyoktanin pencil may be passed. The dressing is not disturbed, except the external one for micturition, for two or three days. The discharge is free for a time, then becomes much less. If the tissues are found well stained after the first dressing, boracic acid alone is used in place of the tampon. If the entire cervical cavity is involved, moderate dilatation of the external os is made by steel dilators, the sharp curette is used, and pyoktanin, in solution or by pencil, is applied; the cavity is firmly packed with gauze soaked in pyoktanin solutions and followed by the previously-mentioned tampon. The only disagreeable effects met with are the staining and soiling of the skin by the pyoktanin. The average duration of treatment is from ten to fifteen days; the number of dressings are from three to five.

Formento, of New Orleans,¹²_{Mar.} advocates vaginal incision and antiseptic drainage for the treatment of pelvic suppuration. The principal features are: 1. Direct penetration into the peritoneal cavity by means of the curved trocar. 2. Incision by Simpson's metratome, which is introduced along the groove of the sound. 3. Special hæmostatic methods, by means of sponge specially prepared and introduced into the foyer in cases where the hæmostatic forceps cannot well be used. The principle consists in the opening of the pelvic collection made in the posterior vaginal *cul-de-sac* and thorough antiseptic drainage. The incision in the majority of cases is sufficiently large to admit two or three fingers; ablation of the uterus, ovaries, or tubes is only exceptionally performed. It is sometimes done as a secondary operation, when the patient

has not been cured by the primary milder method. The mortality is much less, being but 2 per cent. The operative procedure consists in puncturing the wall of a limited collection of pus by means of the trocar in the posterior vaginal *cul-de-sac*, except in rare cases, where the abscess is between the vagina and bladder; incision largely and transversely by the metrator, and keeping the cavity dilated and well cleaned until cicatrization takes place. The following rules should be followed: Under complete anæsthetization and thorough disinfection,—the patient lying on her back, with the thighs strongly flexed,—the purulent cavity is once more thoroughly defined and the position of the womb and rectum well made out; an assistant pressing down upon the abdomen causes bulging of the cavity of the vagina; the operator plunges his trocar, properly directed, in the centre of the posterior *cul-de-sac*, immediately back of the os uteri, withdrawing it after puncturing the cavity; through the groove of the cannula, held *in situ*, the metrator is introduced into the abscess. The cannula is withdrawn, the metrator opened to the proper width and withdrawn while opened, thus incising transversely the walls of the abscess and vagina. A weak antiseptic solution is injected; a proper sponge, well iodoformed and tied with thread, is introduced into the abscess and left protruding through the vaginal incision. The operative procedure is complete, safe, and easy of execution, and immediately affords immense relief. Patients seen from eighteen months to six years after the operation have been in a most satisfactory condition, improving more and more with time. The good results have been verified in phlegmons, pelvic peritonitis, hæmatoceles, tubal collections, and all kinds of pelvic collections. The mortality in cases of pelvic suppuration treated by laparotomy is 10 per cent.; treated by vaginal incision and drainage, 1 to 2 per cent.

Goullioud ²³⁶_{Nov., '91} also advises incision of the vagina in pelvic collections, and says that the method of Laroyenne, which removes collections of chronic perimetritis largely by the vagina and establishes cicatrization, merits an important place in the treatment of such collections. It is an operation attended with certain recovery in cases of abscess complicated by multiple foci and fistulæ. Many cases recover without any further trouble. The unpleasant symptoms are ameliorated, and the results are superior to those observed some months after other intervention. In four cases

there was subsequent conception. These fortunate results have been experienced not only in abscess, pelvic peritonitis, and hæmatocele, but also in tubal collections. The method has been employed in all cases of pelvic collections, but, should we prefer immediate ablation to incision, in cases of dilatation in salpingitis, we should at least reserve the bad cases, where we are not sure of success from laparotomy, and thus obtain an unhoped-for cure. Ablation of the annexes remains as an ultimate resource in that it is of less gravity in cases of pain from cicatricial lesions. It is then indicated to relieve the salpingo-ovaritis. The superiority of the vaginal incision consists in the low rate of mortality. In pelvic suppuration by laparotomy the mortality is 10 in 100; by vaginal incision, 1 to 2 in 100.

While many specialists are aiming to avoid so dangerous an operation as ablation of the appendages for pelvic collections, Segond, of Paris, ⁷³_{Sept. 17} and Bazy ³_{Nov. 18, '91} advocate the removal of the uterus by vaginal hysterectomy in all cases in which the tubes and ovaries are extensively involved. The advisability of the removal of the appendages for hystero-epilepsy is still a mooted question. Boldt, of New York, ¹⁰⁰³_{June} says that in hystero-epilepsy he would consider as an indication for the removal of the adnexa the fact that all other treatment had been negative; that the patient's condition had gradually become worse; that pathological changes existed in the pelvis (*i.e.*, adnexa), which can be readily ascertained; and that the epileptic fits must obviously be found to have some connection with such diseased conditions and menstruation. In a case where the appendages are not grossly diseased and palpation of the ovaries results at times in epileptic fits, or where the seizure is most intense and proceeds from the ovarian region, all other causes having been positively eliminated, and the patient having been under observation by an experienced observer and under the care of a neurologist, or seen by him in consultation, the operation is indicated. Its result, its nature, and the possibility of its failure should be stated to the patient in the presence of witnesses. The operation should not be done unless sanctioned by an experienced gynaecologist, who has himself observed the patient sufficiently long to arrive at a conclusion; and should never be done except by an experienced abdominal surgeon. The vaginal or abdominal section may be selected.

Vander Veer, Albany,²⁰⁶⁵ is willing to operate when a female gives a history of early nerve-strain; when her menstruation has been decidedly irregular, associated with pelvic disturbance; when she evinces a pathological train of symptoms that point to the history of epilepsy, which a thorough, intelligent course of medical treatment has failed to relieve; and when the case is fully explained, both to the patient and her friends in all its bearings, and full consent has been given, either by the former or the latter. Mundé reports five cases of hystero-epilepsy operated on, resulting in cure.

In endeavoring to fix the proper position of the operation for removal of the appendages, Battey, of Rome, Ga.,⁶⁴⁷_{Nov., '91} gives, as the objects of ovariectomy:—

1. Prolongation of life.

2. Restoration of the disordered mind.

3. The cure of epilepsy. In epilepsy, as in insanity, there should be some connection between the disorder and the ovaries. A woman should never have her ovaries removed simply because she has epilepsy.

4. The relief of intolerable pain, especially when it leads to the detestable habit of the use of opium. The indications for the operation, he says, are: (*a*) the case must be desperate; (*b*) it must be incurable by ordinary means; (*c*) there must be a reasonable hope of cure.

An editorial writer¹⁹_{Mar. 12} justly says that removal of the uterine adnexa to prevent pregnancy is very justifiably condemned, and must be considered malpractice. In discussing the effects of castration, Wharton Sinkler, of Philadelphia,¹¹⁵_{Dec., '91} says that it is difficult to determine whether the cases which have been apparently cured by castration have really been cases of epilepsy or only cases of hysteria, and that when the operation is done for the relief of pelvic pain it does not invariably accomplish its object. If the pain is due to inflammation or diseased conditions of structures, it is often relieved for the time, but before many months it returns in the stumps of the ovaries, to be more severe than ever. When the pain is neurasthenic, and not connected with disease of the ovaries, the removal of these bodies seldom gives relief. In summing up, he says that the remote effect of the removal of the ovaries and tubes upon the general health is, as a rule, to improve

nutrition and to better the strength, especially if the operation has been done for diseased ovaries or tubes. Excessive gain of flesh is rare, and the change of voice, growth of hair upon the face, and loss of feminine characteristics do not occur. The sexual appetite in women is seldom changed by castration within two or three years after the operation, but, after several years, it becomes lessened.

It is quite often the case that, after this operation, patients are more nervous than formerly. Mental disturbance of various forms, insanity, and epilepsy not unfrequently follow. The influence of the operation is sometimes good upon insanity and epilepsy associated with severe dysmenorrhœa, or occurring periodically at the menstrual epoch. When the insanity is constant, although it may be aggravated at the menstrual periods, the removal of the appendages is of no benefit. Hystero-epilepsy is seldom permanently cured by the operation. Prolonged after-treatment is generally necessary to relieve such cases. Local pain is often not relieved by this operation, while certain cases of neurasthenia which are associated with dysmenorrhœa or structural changes of the ovaries are cured. No such cases should be subjected to an operation without having had the benefit of prolonged and patient treatment. It is unjustifiable to remove the ovaries and tubes, in cases of neurasthenia or hysteria, when these organs are healthy.

Reamy, of Cincinnati, ¹_{Nov. 14, '01} says:—

1. Pyosalpinx is more common among the poor than among the well-to-do.
2. Gonorrhœa is a less frequent cause of disease of the appendages than is supposed.
3. In isolated cases surgical interference for disease of the appendages gives brilliant results.
4. The removal of the appendages is a valuable measure in the treatment of hystero-epilepsy.
5. It is not a good measure for neurasthenic conditions.
6. Many cases of pelvic disease could be cured by less radical measures.
7. Many cases in which a cure is reported are deceptive.
8. The arrest of menstruation in so many cases shows the influence of the ovaries on menstruation.

9. The influence of the removal of the appendages upon the sexual appetite has not been properly stated heretofore.

10. The influence of such an operation in all its relations should be carefully considered before operating.

Aristoff⁶⁷³_{July} advances the opinion that, after the removal of one ovary, the other ovary becomes larger and its ova mature more rapidly as a compensation for the lost one. Putnam, of Boston,⁹⁹_{Dec.17,'91} thinks that when slight or moderate ovarian or uterine disease is associated with marked nervous symptoms, whether these are of the nature of unusual local pain or of a more general character, it is rarely the case that the local disease is alone at fault, and the physician should look carefully for other signs of the main trouble in the nervous system itself. It is very often found in practice that by invigorating the general nervous condition the patient can be made comparatively insensitive to local irritations; that before deciding on a step which may lead to bitter regret and disappointment, or to more or less persistent nervous symptoms of the former, or of a new type of disease, the physician should omit no means for accomplishing his ends which study and care can secure; and even if he fails, he should remember that his chances of success from ovariectomy are not of the best. It should be especially borne in mind that the elements of personal temperament and personal influence play an important part in the treatment of neurasthenia and mental disorders; so that some new physician may succeed where others have failed, or that every one may do better, if possible, if he chooses the best method and relies upon it with sufficient persistence. It is certainly true that neither the patient nor the physician is likely to devote the determination and zeal to the general treatment if the possibility of a more speedy cure by operation is looming in the background. In the minds of both of them the treatment selected should be, for the time, the only treatment. The new light which the investigations of hypnotism and kindred subjects have thrown upon the pathology of the nervous system indicate that oöphorectomy cures neurasthenia; it sometimes does so by so-called suggestion,—*i.e.*, by influencing the cerebral processes not ordinarily concerned in active consciousness, but having a great deal to do with nutrition, sensitiveness to pain, and the like,—and there is always room for hope that some other and less objectionable means may be found to exert this influence.

It is probable that electricity and the rest cure, as well as hypnotism, often act in this way. All this the physician should conscientiously say to himself; but having done so, he should with equal conscientiousness recall the cases in which oöphorectomy was the agent that restored the wished-for health, and should look upon it as another and valuable string to his bow, though one of only occasional utility. As regards the kind of cases in which oöphorectomy seems the most objectionable, apart from considerations of non-medical character, it is doubtless true that the serious typical neuroses, and especially epilepsy, are rarely benefited; and the more so in proportion as the symptoms are of a definite character and independent of the origin of pelvic disease. The mere fact that nervous symptoms are worse at or near the menstrual period by no means necessitates the conclusion that there is an immediate causal connection between the two series of events.

In consideration of the relation of insanity and gynæcological operations, J. M. Baldy, of Philadelphia, is of the opinion that cases of serious mental derangement may occur after operation in a person without a history of insanity; that mental disorders are no more likely to follow operation on the sexual organs than upon other parts of the body; that the accident is as frequent in men as in women; that operations act as a determining cause to mental derangement where there is a previous tendency. Emotional disturbance is greater at the time of surgical operations. Where there is an inherited tendency to mental disease, laparotomy should only be undertaken with the understanding of the possible outcome, and it should not be done then unless the case is urgent. Mental disturbance following gynæcological operations is more frequent than is generally supposed.

OPERATIONS.

Technique.—Etheridge, of Chicago, ¹⁹⁵²_{June} in preparing for abdominal section, has the pubic and vulvar hair shaved; after a thorough scrub-bath with soap and water, the patient is washed thoroughly with a solution of mercury, from the shoulders to the knees, and afterward with a solution of alcohol or ether. An iodoform pad covers the whole abdomen, being held in place by the binder and kept on until the operation next day. The instruments, needles, and ligatures are boiled in a sterilizer for the space

of half an hour, just prior to the operation. They are removed from the boiler with thoroughly clean hands, covered with anti-septic towels, to be uncovered only at the beginning of the operation, handled only by the operator and the head surgical nurse. The hands of the operator, his assistant, and the nurse who handles the sponges are washed for the space of ten minutes with hot water, green soap, and a scrub-brush. The latter is kept immersed in a solution of bichloride (1 to 2000); then washed in sterilized water, and afterward in a solution of 1-to-500 bichloride, and subsequently in absolute alcohol for five minutes. Needles are thoroughly cleansed. After washing, hands are permitted to come in contact with absolutely nothing excepting the patient, instruments, sponges, and ligatures. A second nurse has charge of an aseptic sheet, with an oval opening that exposes the abdomen. Towels are wrung out of hot, sterilized water, and placed about the abdomen; hands are washed from time to time, during the operation, in hot, sterilized water. It is well to bear in mind the golden truth that it is not so often what is found in the abdomen that destroys the patient as what is put into it by hands, sponges, or ligatures. Everything should be ready before taking up the scalpel. It is quite necessary to see that the hands of all the assistants have been prepared with the greatest care. A dirty needle, finger, or matrix of one of the operators may defeat the whole operation.

As an antiseptic, Illingworth, ²²_{Nov. 11, '91} advocates the biniodide in preference to bichloride, for these reasons:—

1. It is not so poisonous; hence the risks of poison by absorption are not so great.

2. It does not form an albuminate; consequently the whole of the salt is available as an antiseptic.

3. It may be used with either acids or alkalies, neither of which appear to interfere immediately with its antiseptic properties.

4. It is not necessary that the solution should be made with distilled water; all that is necessary is a slight excess of iodide of potassium.

5. The mercury from the solution is not deposited on the surface of the skin or on instruments, or the deposit is very slight,—so slight, indeed, that it will not injure the most delicate instrument.

6. The exact strength of the solution is always known, as its properties remain constant.

Drainage.—West Hughes, of Los Angeles,⁴⁴_{Jan.} uses drainage if any pus is encountered during the operation; if the contents of the cyst have escaped into the abdominal cavity; if bleeding has been very profuse; if it has been necessary to cut or tear adhesions. If pus is present, he prefers to use rubber tubing, so thick that it will not collapse and will not become choked up. Rubber is preferable to glass, because it can always be had of proper length and size. Thick, red tubing is the most serviceable. Where there is no pus, capillary drainage is the best. A strong, glass tube, with small holes in the lower third, is filled loosely with some aseptic material, as lamp-wick or sterilized absorbent gauze, which should project slightly from each end. When the drainage becomes slight, the tube is removed and the last suture tied.

Opie, of Baltimore,⁷⁶⁰_{Dec. 26, '91} condemns drainage as doing more harm than good, and says that it should be abandoned by the abdominal surgeon. The oft-repeated removal of dressings from the patulous drainage-tube must of necessity be a very great danger. Surely it favors decomposition and invites germs. After an anæsthetic, restlessness is not wholly unavoidable, and it is easy to see how physical injury may occur to the patient during this time from these smooth, but not at all innocent, glass tubes. He has had stitch-abscesses occur in nine cases, and attributes the occurrence to the early and frequent change of dressing in the use of the drainage-tube. He quotes Welch as saying that a coccus, which may properly be called “*staphylococcus epidermis albus*,” is a nearly, if not quite, constant inhabitant of the epidermis, lying both superficially and also deeper than can be reached by present methods of disinfection of the skin. This coccus is found frequently in aseptic wounds. It may become the cause of disturbances, usually of a relatively slight degree, in the healing of the wound, especially if drainage-tubes are inserted. It is a most common cause of stitch-abscess in wounds treated aseptically and antiseptically. He is of the opinion that there is too much flushing done. It is rarely called for. A plentiful supply of fine, properly-prepared elephant-ear sponges will do away with the necessity for flushing in most cases and remove the necessity for drainage.

They are efficient helps in preventing infection; can be utilized in keeping back the intestines; in keeping the *cul-de-sac* dry, placed below the pedicle; in taking up blood and secretions; stanching hæmorrhage, and in separating adhesions; and in protecting the intestines while closing the abdomen.

Prince, of Springfield, Ill., ¹⁹_{Apr.30} doubts the wisdom of flushing in preference to simply sponging with sterilized sponges of gauze. Blood-clots and materials which escape from cysts are more readily removed by the sponge than by flushing. During an operation the intestines should be subjected to as little injury and exposure as possible. If they are greatly distended, it is better to puncture them and let the gas out than to take them outside the abdominal cavity. Martin saturates the sponge with oil and places it over the intestines. The contact of the oil with the intestines decreases the danger of adhesions. In the use of either sponges, gauze, or instruments it is important to have a definite number, and to make sure that these are outside the abdomen before it is closed.

Salin, of Stockholm, ²_{July 23} uses sterilized-gauze compresses instead of sponges. He did an operation on October 31, 1890, removing an ovarian tumor from a woman aged 55 years. At the end of the summer of 1891 she complained of swelling to the left of the hypogastrium, and in October, a year after the operation, an abscess formed in the lower extremity of the abdominal cicatrices. This opened spontaneously, and a quantity of fatty pus escaped. A fistula remaining, the abdominal wound was dilated by plugs of iodoform gauze, when some threads came away. These were found to be cotton instead of silk; hence they did not arise from the pedicle ligatures. Enlarging the fistula with a knife, a gauze compress was discovered and removed. The next day, material, evidently contents of the small intestine, came away through the wound, which gradually closed. Wright, of Leeds, ²_{May 21} removed a double dermoid cyst; a pair of torsion-forceps were placed on large adhesions near to the liver and forgotten. These were cut down upon seven months later and removed; the patient recovered.

Ligatures and Sutures.—Keith ⁶_{Apr.30} advocates the use of silk for the ligation of the pedicle after ovariectomy. It must be chemically, as well as apparently, clean. The most effective way is to boil it, and keep it in a solution of 1-to-20 carbolic acid. The suture

should be used by transfixing the pedicle, so as not to pull on one knot while the other is being tied, and the two double ends tied together. Madden, of Dublin, ²⁶_{July} believes that the pedicle should never be ligated with a simple encircling ligature, but should always be transfixed. He then follows Keith's plan, and uses the thermo-cautery after the removal of the tumor, dropping it back into the peritoneal cavity. Goodell ⁸⁰_{Jan.} recommends the use of catgut sutures for closing the abdominal wound. He uses a row of sutures, uniting the cut edges of the fascia and the two recti muscles. In fatty abdominal walls, as a further precaution, a second tier of sutures are inserted higher, to unite the tissue nearer to the skin. For the bowel and bladder he uses a fine catgut suture. One advantage of catgut over silk is that, should a needle inadvertently pass through the coats of the intestine, the swelling up of the gut suture effectually corks the needle-holes and prevents faecal leakage. He has also used it recently for the ligation of the pedicle in tumors, on account of its absorbability and the improbability of its becoming infected. He had seen a number of cases of infection from the silk ligature which had led to long-continued sinuses. He prepares the catgut as follows: It is placed in commercial ether for twenty-four to forty-eight hours, according to the size of the gut, which, if of the largest size, requires that the ether be changed once. The gut is now immersed for forty-eight hours in a 1-to-1000 alcoholic solution of corrosive sublimate, wound on glass spools by surgically clean hands, and kept for use in a solution of 2 parts of oil of juniper-wood to 1 of alcohol, which is occasionally changed. When needed for operation, the requisite number of spools are transferred to a mixture of 1 part of glycerin, sterilized by heat, to 1 of alcohol. Thus prepared, they last in the tissues of the body for a week or ten days.

Montgomery ²⁰²_{Nov. 10, '91} hesitates to place in the abdominal cavity any material which will not readily be absorbed. Silk thread prepared under the most careful precautions may become infected in its introduction or by proximity to a drainage-tube or to an infected pus-tube, and, once being infected, remains a source of infection, maintaining an open sinus until it is entirely discharged. For this reason, he has been in the habit of using animal ligature (catgut), which he knows will be ultimately absorbed. It must, however, be scrupulously cleaned. His method of preparation is to place

it in ether for forty-eight hours, then in either juniper-oil or a 5-per-cent. solution of carbolic acid in which 1 grain (0.065 gramme) of bichromate of potash is dissolved to the ounce (30 grammes). Catgut prepared in the latter way is more durable, and consequently more suitable for ligatures. The other catgut may be used for ligating smaller vessels and adhesions. Ricketts, of Cincinnati, ⁵³_{Feb. 20} reports a case, in which a silk ligature was passed by the urethra nearly a year after the ovariectomy, in which there was a double pedicle. The discharge of the ligature was attended with relief of the distress and discomfort.

Rabagliati, of Liverpool, ²⁶_{Aug.} has not used the Staffordshire knot or any encircling ligature for years. He ligates each bleeding point separately, and in some cases does not use the clamp, the finger and thumb of the assistant being sufficient to hold the stump until the tumor is cut off. Then a pair of Spencer Wells forceps is placed on each bleeding vessel, after which each artery and vein may be tied at leisure. If the clamp is used, the vessels may be picked up and tied separately, especially if they are not cut too close to the clamp. Even when the pedicle is transfixed, which is often done where it is large and thick, whether he uses the silk or catgut, he does not trust to this, but ties each open vessel separately, and removes the encircling ligature, afterward bringing the peritoneum to peritoneum, so as to close the stump and prevent adhesions to viscera. The cause of hæmatocele in such cases is, that the artery slips back behind the encircling band and gives rise to hæmorrhage in the broad ligament.

Trendelenburg Posture.—Schauta, of Vienna, ⁸⁴_{Nos. 1, 2, 3} while advocating the Trendelenburg posture, claims that it is not devoid of danger. He has seen two cases of obstruction out of one hundred and four abdominal sections where this position was used. The first case was one of volvulus, where the ileum rotated around the mesentery from right to left. A large perforation from the upper, extremely-distended part of the small intestine joined the contracted part below the obstruction. The second was a case of adeno-carcinoma of the right ovary. Obstruction occurred on the sixth day. Three days later there was faecal vomiting, and, the abdomen being again opened, the intestine was found to be rotated around the mesentery. Volvulus was thus induced, and the patient died in about twenty-four hours from pneumonia apparently of

embolic origin. He says that in all such cases the pelvis should always be lowered after the deep sutures have been introduced, when a gentle shake given to the abdomen will allow the intestines to fall in place. Finally, the deep sutures are tied.

Krug, in a personal communication, states that he does not consider Schauta's conclusions well taken. In the first place, he cannot reconcile the statement that Trendelenburg's posture could be responsible for an obstruction which occurred on the sixth day after the operation, the bowels having moved freely during the preceding four or five days. If the posture has anything to do with the accident, it certainly should have manifested itself from the very start. Secondly, he (Krug) has done three hundred and fifty abdominal sections in Trendelenburg's posture, and has not exercised Schauta's precaution in shaking the body, and still has had no accident. He has also made inquiries among his professional friends, who have constantly used the position without having heard of a single case of this kind occurring in their practice.

Ventro-fixation.—Howitz and Meyer⁶⁷³_{Mar.} report eight cases of laparotomy in which, after the removal of one or both ovaries, a ventro-fixation of the uterus was made in order to obviate a retro-fixation of the organ. In these cases the pedicle was fixed to the abdominal wall, and the operation was successful in that the uterus maintained its rectified position for over a year. In two cases a suture was also passed through the anterior wall of the uterus. In one it remained in position, in the other it relapsed. Ovariectomy has been found specially dangerous where tumors are very large.

Complications.—Gottschalk, of Berlin,⁴¹_{Dec. 17, '91} reports the case of a patient, 36 years of age, in whom the removal of both ovaries was followed by the loss of smell and taste. Careful examination disclosed the absence of any local or central lesion as a cause; hence it was attributed to a manifestation of the reflex neuroses excited by the artificially-produced climacteric. This, however, was confirmed by the fact that the patient has decidedly improved during the six months following. Macphatter¹⁵⁵_{Aug.} reports a case in which ovariectomy was done for malignant tumor, in which it was necessary subsequently to do colotomy. The patient recovered from both operations.

Potherat, of Paris,²_{July 13} reported a case of ovarian cyst complicating pregnancy. A few days after delivery fever, rigors, and

vomiting set in. A cystic tumor was discovered and removed. It was adherent to the intestines, omentum, parietes, and peritoneum. The adhesions were very firm. The pedicle was twisted. Inflammation had resulted from the torsion of the pedicle. ⁹⁵Disine ^{B.24,H.3} has collected one hundred and thirty-five cases of ovariectomy performed during pregnancy, from which he draws the following conclusions: (1) complication of pregnancy with ovarian tumor is to be considered a very grave occurrence, in which, with few exceptions, extirpation of the tumor comes into question; (2) the farther pregnancy progresses, the more dangerous is the situation; (3) the puncture of ovarian cysts and the production of abortion are to be considered only in an emergency; (4) ovariectomy gives the best results for the mother in the second, third, and fourth months of pregnancy, for the product of conception in the third and fourth; (5) if an early ovariectomy is not possible for various reasons, it is to be carried out in the later months of pregnancy, as good results can be even then expected.

McMordie, of Belfast, ⁶_{Jan.30} reports the removal of an ovarian cyst from a woman who was pregnant, the uterus having attained the size of a foetal head. The woman recovered. Pregnancy went to full term.

Bland Sutton ²_{Apr.23} reported twenty-two cases of ovariectomy in patients over 70; the oldest was over 80. This he considered the oldest on record. Edis, of London, ²_{Apr.23} however, reported an ovarian tumor removed from a patient, 81 years of age, who recovered perfectly. Homans, of Boston, ²_{June 4} reported a case in which the patient was 82 years and 4 months old, and was living four years afterward.

Favell ²_{Nov.14,'91} reports a death following ovariectomy, in which the post-mortem disclosed the omentum rolled into a thick cord and adherent to the pelvis back of the uterus. The stomach was dragged down by it and greatly distended.

Phillipps ²_{Jan.10} reports a collection of sixty-four cases of tetanus complicating ovariectomy, from which he concludes:—

1. That the operation of ovariectomy has elements productive of tetanus by nerve-irritation, viz., tearing of adhesions and ligatures to the pedicle; but the tetanus in these cases does not deviate from the usual series of symptoms which are observed when it complicates other surgical operations.

2. That although some cases of tetanus arise *de novo*, and not necessarily from the presence of sepsis, yet the usual source is by contagion, aided by sepsis.

3. That although the garden-mold theory of causation is not established, yet there is sufficient evidence to recommend avoidance of operation in a room recently plastered or situated near lately-disturbed garden-mold.

4. That, on the first symptoms of tetanus, a strict local search should be made for irritating causes and general treatment instituted.

5. The folding over of the broad pedicle which had already been ligated and the application of a second ligature is not to be recommended.

6. The only means of disinfecting instruments is to boil them for at least one hour.

Doran criticises these conclusions, and says that, out of thirteen hundred cases of laparotomy at which he had been present, tetanus had occurred in two, and in both the patients had been exposed to draughts, the weather being cold and changeable at the time.

Bovee, of Washington,⁸¹_{May} attributes death in ovariectomy to the decreased pressure. He says that the tumors, as they increase in size, distend the abdominal walls, stretching them to double their normal length, and that they are held in this position so long that their elasticity is lost. The diaphragm is pushed upward, decreasing the space in the fornix, and both expiration and inspiration are shortened. The chest and muscles become more or less atrophied after the tumor is removed. In inspiration the intestines and contents of the abdominal cavity lift up the lax portion, and in expiration the weight of this portion falls as the intestines recede toward the head. This is more or less wearing on respiratory effort. The intestines are so pressed upon that their functional activity is slight, and hence weakened so that the blood-vessels, especially the venous system, become engorged, and they consequently form blood-sacs. Blood is pumped into them by the heart and they dilate, retaining a large part of the blood, and, having no power to prevent this distension, this blood is taken out of the circulation, the equilibrium between waste and supply is lost, and the system suffers. The result of the operation depends much upon the preparation, technique, and after-treatment.

Sequelæ.—Jonas, of Omaha,¹⁰⁶_{Aug.} advocates the prevention of flatulence by early and free catharsis. It may be palliated by the introduction of a rectal tube, by glycerin and turpentine injections, or by enemata of sulphate of magnesia, Labarraque's solution, asa-fœtida, or ox-gall. The latter remedy has proven a life-saving agent in one case, in which all remedies, per orem and per anum, were without effect. No stool, no flatus had passed; the temperature was 99 degrees; the pulse had not risen above 110, and there was enormous abdominal distension, but no sepsis. Reversed peristalsis was due, no doubt, to extensive peritoneal trauma. As all other agents had failed, when ox-gall and water, each 1 ounce (30 grammes), was carried through the rectal tube high up into the bowel, thorough evacuation followed, putting an entirely new aspect on the case. The left lateral position, when it can be borne, favors the escape of gas.

Currier, of New York,²³_{July} states that sinuses are likely to occur in tuberculosis of the peritoneum and in patients suffering from syphilis, malignant disease of the peritoneum, or of any of the abdominal viscera; also, where there is an abundance of adhesions showing previous inflammatory processes or the presence of an irritable peritoneum. Irritative action may be kept up and the sinus result from drainage- suture- or ligature- material: from glass drainage-tubes, from too many or too large sutures or ligatures, or from the loosening of the ligatures around tissues which have shrunk or atrophied. The use of gauze as a drain is a distinct advance. It prevents the entrance and development of poisonous germs, and its withdrawal breaks up the plastic material. The same objections to glass drainage-tubes are applicable to those of rubber, bone, or other more or less firm material. The influence of sepsis in the formation of sinuses is difficult to determine. The methods of treatment are simply expectant, palliative, or radical. The latter consists in re-opening of the peritoneal cavity and extensive dissection, with possible inability even then to remove the difficulty. Expectant treatment consists in doing nothing, and this, in cases of a fair degree of vitality, is probably as effective as any. Palliative treatment consists in cleanliness, irrigation, applications of nitrate of silver, 20 to 30 grains (1.30 to 1.94 grammes) to the ounce (30 grammes). Morris²³_{July} has suggested trypsin. He recommended it in two cases; in one it opened

into the bladder, and in the other into the small intestine. The former was cured by drainage of the bladder, the latter by resection of the intestine.

M'Ardle²_{Mar.5} believes that fecal fistulæ following removal of abdominal tumors originate from extension of suppuration from the tumor into the intestine; from ulceration of the intestine extending into the tumor; from local necrōsis of the bowel due to pressure of the tumor; from tearing of the coats of the bowel, owing to injury of the vessels of the intestine; from constant pressure of the glass drainage-tube in contact with the bowel. Regarding the treatment, he considers early interference unjustifiable where the fistula is from a fixed portion of the intestine; when operation is demanded, it should be thorough, and should aim at the closure of the intestine.

Ashton, of Philadelphia,⁶¹_{July 9} says that the causes of intestinal obstruction may be classified as follows:—

1. Adhesions between the intestine and raw surfaces (*a*) to an omental stump; (*b*) to denudations of the pelvic and parietal peritoneum; (*c*) to the edges of the vaginal wound following supra-pubic or vaginal hysterectomy; (*d*) to a pedicle; (*e*) to raw surfaces on the intestinal wall.

2. Paralysis of the intestine.

3. Localized spasms of the intestine.

4. Impacted fæces.

5. Bands of inflammatory lymph.

6. Adhesions between coils of intestine, or between gut and neighboring parts, due to traumatic inflammation.

7. Kinking or twisting of the intestine, due to a faulty technique.

8. Inclusion of intestine within a loop of the abdominal-wall suture, or between the edges of the belly incision.

9. Slipping of a coil of intestine through a slit or an aperture.

Klotz, of Dresden,³¹⁷_{No.29} reports 31 cases of ileus seen in 569 abdominal sections, 5 of which died. These cases occurred where rigorous antiseptics and prolonged tedious dressings were in vogue, and consequently he did not consider it an indication of sepsis. The way to prevent this sequela is to avoid antiseptics and toilet of the peritoneum, check completely all hæmorrhage from the surface, and regulate all peristalsis of the injured intestine as soon

as possible. He accomplishes this by Seidlitz powders and enemata on the second day. When occlusion has set in, he washes out the stomach, under high pressure, and inflates the rectum with air. When these means fail, he washes out the stomach once more, and after completely emptying that organ he administers a large dose of castor-oil,—56 grammes ($1\frac{3}{4}$ ounces).

Baldy, of Philadelphia,^{23 Feb.} in speaking of intestinal injuries, says that possibly it would be well to introduce stitches in every case of injury of coats of the intestines, with the double object of controlling perfectly troublesome bleeding, which may have taken place, and reducing to the minimum any chances of adhesions occurring at the points of denudation. Where the tear has extended into or through the muscular coats, where the adhesions have once been well organized, or where they are of such a rotten character that they almost drop apart as they are handled, it becomes imperative that sutures be placed so as to bring the lacerated edges together; provided, only, that the injured surfaces be not of too great extent, or the surrounding structure be not too much diseased to stand the tension of the stitches. In these latter cases, if the introduction of the sutures lessens the calibre of the gut to a dangerous extent, it becomes advisable to think of some other expedient. Either the injured bowel should be resected or placed in proper position, trusting that a complete perforation will not take place, or necessary precautions should be taken to protect the tissue against the results of perforation should it occur. In these cases the chances are largely in favor of non-complete perforation, if the mucous membrane be comparatively healthy. If it holds out a couple of days adhesions will have occurred at the point of traumatism, and when the diseased mucous membrane comes away the fecal matter will probably find a healthy wall in some neighboring intestine adherent over the intestine, and effectually block it up; or the adhesions will be of such a character as to limit the extravasation of fecal matter to a small space.

Sutton, of Pittsburgh,^{196 Aug.} states that where suppuration occurs, as it may in a wound in a fat abdomen or in an extremely debilitated patient, pus should be early evacuated, the sinus thoroughly cleansed with hydrogen peroxide, and its walls subsequently stimulated with iodized water, with or without a drainage-tube. He has found this treatment invariably successful.

Morris, of New York, ⁶¹_{July 9} has noticed hernia occurring in cases in which a single suture has been used in the abdominal walls. His plan is to suture the peritoneal margin with catgut, which is absorbed in one week. The next tier of sutures of catgut is absorbed in eighteen days, and this series of sutures is employed for very close approximation of the muscular and fibrous structures. A third tier closes the skin wound, and is composed of catgut that is absorbed in seven days. If the patient is very fleshy, a catgut that remains for eighteen days is again used. Patients, as a rule, are allowed to get out of bed on the seventeenth day, and they never wear supporters to prevent hernia.

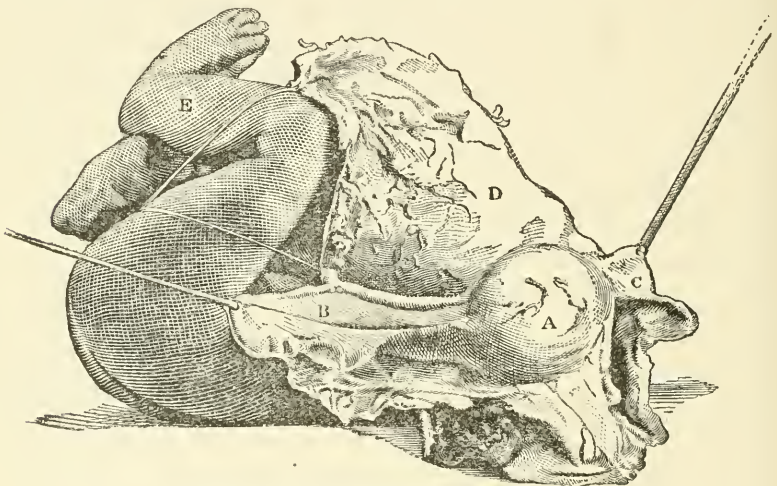


FIG. 1.—UTERO-ABDOMINAL PREGNANCY.

A, posterior surface of uterus; B, appendages on left side; C, appendages on right side; D, portion of gestation sac not removed; E, fetus replaced as nearly as possible in original position.

(*Annals of Gynecology and Pædiatry.*)

ECTOPIC GESTATION.

Tubal Pregnancy.—Werder, of Pittsburgh, ¹_{Jan. 23} disagrees with Tait in regard to the occurrence of intra-ligamentary rupture of the tube, and with both Price and Tait as to intra-peritoneal rupture of the tube being necessarily fatal. He reports several cases in which operation has been done and others in which it had not, confirming his view. He also disagrees with Olhausen and Reed as to the advisability of the removal of the uninfected ovary and tube. As a result of this conservative treatment, subsequent pregnancy has occurred in two cases: one patient was delivered of two living children, and the other was in the seventh month of pregnancy.

Mackenrodt¹¹²_{Apr} reports a case of double tubal pregnancy. One pregnancy occurred in May, 1890, operation being refused. The patient was able to leave her bed in two months, still suffering from peritoneal adhesions. In September, 1891, the menses were again absent; at the end of October there was irregular bleeding and sharp pains in the left side, for which operation was done; the left tube contained an ovum unmistakable on both macroscopic and microscopic examination. On the right side, in a cavity adherent to the intestine, and into which the right tube opened, were found the small bones of the foetal extremities.

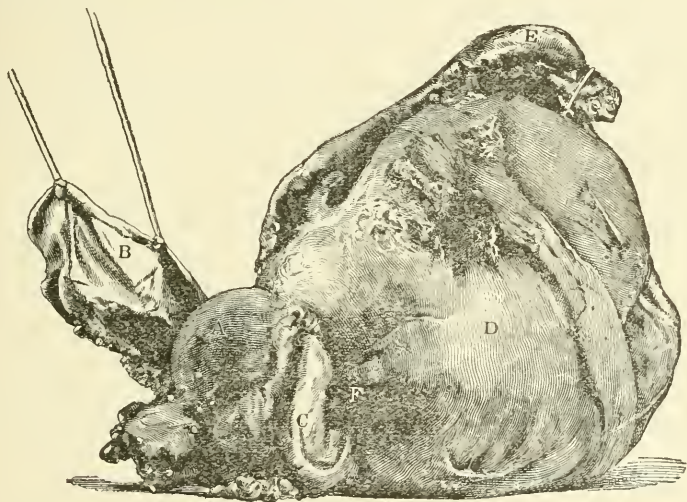


FIG. 2.—UTERO-ABDOMINAL PREGNANCY.

A to E, same as Fig. 1; F, location at which gestation sac communicated with uterine cavity.

(*Annals of Gynecology and Pædiatry.*)

Utero-Abdominal Gestation.—Fullerton, of Philadelphia,²³_{Oct., '91} reports a case of utero-abdominal pregnancy in which the last menstrual period occurred March, 1890. The patient had a fall the following September, succeeded by severe paroxysms of pain, leading her to fear she was about to abort. These pains subsided, and she suffered no further untoward symptoms. Labor-pains set in, apparently, September 7, 1890, when there was a free discharge of watery fluid mixed with blood. Pains continued for two weeks, when they ceased entirely. She suffered from a bloody discharge, and later a dark-brown fluid persisted up to the time she was admitted to the hospital, in April, 1891. The operation was done on the 18th of May, when a tumor, of a dark-grayish color, not

unlike the sac of a dermoid cyst, was found, adherent over its anterior surface to the parietes and posteriorly to the small intestine. Upon opening the sac it was found to contain a foetus, which was seized by the thigh and extracted. The patient died of septic meningitis.

Ovarian Gestation.—Tait, of Birmingham, ²_{June 18} accounts for supposed ovarian pregnancy by saying that, as the sac is distended, the ovary becomes spread out over it; and that, as the Fallopian tube may be lengthened to the extent of fifteen inches, it is possible that the broad-ligament pregnancy might also be so extended, and, the author believes, in all cases might have been mistaken for ovarian pregnancy.

Primary Peritoneal Gestation.—Ashton ¹⁰⁰³_{Aug.} reports a case of primary peritoneal pregnancy in which the tubes and ovaries on both sides were found perfectly healthy and unconnected with the sac containing the foetus.

Symptoms.—Morison, of Newcastle-on-Tyne, ³⁶_{Feb.} found the following symptoms: (1) recurring uterine hæmorrhages; (2) severe attacks of colicky pain in the lower part of the abdomen; (3) rectal tenesmus, occurring sufficiently often to make the symptom worthy of attention. The most characteristic signs were the history of previous pelvic mischief; many of the symptoms of pregnancy; changes in the breasts, vagina, os, and cervix; recurring attacks of hæmorrhage, preceded by painful spasms in the lower abdomen; the presence of a tender, elastic swelling on or to one side of the uterus, rapidly increasing in size. Such a group of symptoms should be considered sufficient ground for diagnosis of ectopic gestation, and the abdomen should be opened without delay.

Analysis—in nineteen cases—of the earliest symptoms made by an editorial writer, ⁹⁵_{Ed. 41, '91}; ⁹⁰_{Apr.} shows that one of the first was menstrual cessation and a period of hæmorrhage, the flow returning at dates varying from six weeks to two, three, or four months, in one case nine months. In every case more than a month elapsed. In these instances diagnosis was founded not on foetal parts, which were absent, but on the sole evidence of decidual cells or chorionic villi. The next symptom in most cases was the sudden onset of unusual and severe pains, generally cutting, in the lower abdomen; their recurrence on exertion, and discontinuance in the horizontal posture. These pains

occurred from the sixth week onward, sometimes preceding, at others accompanying or following, the new hæmorrhagic flow, and occasionally being entirely absent. A decidual membrane was expelled in these instances, sometimes constituting an entire uterine cast; sometimes being shreddy, and its expulsion attended with considerable pain. Other signs of pregnancy were wanting in but few instances. Signs of internal hæmorrhage—that is, sudden faintness, tinnitus aurium, blanched skin and cold perspirations, acute abdominal pains, and sense of approaching death—were noticed when the catastrophe of tubal rupture occurred.

Diagnosis.—Vertsinski, ⁶July 23 in considering the diagnosis of tubal gestation and oöphoritis, directs attention to the characteristic symptom described by Thomas as far back as 1873, and rescued from oblivion in 1889 by Lebedeff. This symptom is the varying size of the tumor,—sometimes as large as an orange; at other times, often within a very few days, barely to be defined. This periodical variation in size is closely related to menstruation and ovulation.

Kirkley, of Toledo, ¹⁰⁰³Apr. from four cases, draws the following conclusions:—

1. The diagnosis previous to rupture is sufficiently certain to warrant laparotomy.

2. Excessive pelvic and abdominal tenderness is a fairly reliable sign of hæmorrhage, and points strongly to ruptured tubal pregnancy, made more probable if it disappears with the subsidence of the general symptoms.

3. Sudden relief from all symptoms is a strong diagnostic sign and almost positive indication for operation. This is perhaps the misleading point in the history of ectopic pregnancy.

4. It is possible in many cases, perhaps in most cases, to make a reasonably sure diagnosis previous to rupture, and in doubtful cases laparotomy should be performed, thus giving the patient the benefit of the doubt.

5. Collapse from hæmorrhage is not necessarily a contra-indication in laparotomy for ectopic pregnancy.

6. Laparotomy is the only rational treatment in all cases requiring treatment. His first case reported was entirely free in the abdominal cavity, without any sac, and was adherent to the coils of the intestine.

Taylor, of Birmingham, ⁶_{Sept. 17} says that, in the beginning of extra-uterine pregnancy, there is, of necessity, an enlargement in the Fallopian tubes,—in other words, a tubal tumor. There is an early period, when this is likely to burst before the mesosalpinx and broad ligament can be much invaded by the growth of the pregnancy. This primary rupture is apt to occur at the fifth or sixth week. There is a later period of rupture, less startling and sudden in its onset, which happens after a considerable opening up of subperitoneal tissues, and which is usually preceded by repeated attacks of subperitoneal hæmorrhage and the formation of a distinct and often visible tumor. This rupture is apt to occur about the third or fourth month, when one-half of the pelvis has been filled by the pregnancy, and further progress is necessarily upward into the abdomen. In spite of these dangers, it is possible for the extra-uterine pregnancy to go to full term without destruction. Then it may be found (*a*) inclosed in the intra-peritoneal sac; (*b*) beneath the peritoneum, extra-peritoneally; (*c*) more or less free in the abdomen. From the foregoing scale, it will be seen that extra-uterine pregnancy naturally divides itself into three stages: first, the early stage, from the commencement of the pregnancy until rupture has occurred; second, the middle stage, or about the usual time of rupture, from the fifth to the sixteenth week; third, the advanced stage, in which the child is either viable or has passed beyond the normal period of gestation and died from want of breath. In the first stage the patient has the usual symptoms of pregnancy, believes herself pregnant, and there is nothing to indicate that it is otherwise than normal. Soon, however, irregular hæmorrhage comes on, with pain. A tumor may be felt in the pouch of Douglas, behind the uterus, possessing all the characteristics of the Fallopian tube. The swelling is not very sensitive to pressure, unless some rupture has already taken place. Where there is a history of amenorrhœa, followed by irregular loss, together with signs of a tubal tumor, in a woman of child-bearing age, previously healthy, there is every reason to suspect extra-uterine pregnancy. In all other affections of the tubes which produce enlargement there is usually a history of inflammatory illness of some duration. Primary rupture may come suddenly, without any warning, the resulting hæmorrhage causing increased frequency of pulse, without pyrexia, followed by sighing

and faintness, then by vomiting; then by marked pallor of the lips, face, and fingers. Finally, the pulse, which has been growing progressively quicker and feebler, takes on an absolute fainting character,—that is, for some seconds cannot be felt, or is altogether too weak and uncertain to count,—then recovers some strength and volume, then loses again. There will be a clinical history of early tubal pregnancy, objective abdominal symptoms and signs of abdominal pain and tenderness, and rapidly-increasing abdominal distension. Those who have survived to the advanced stage of extra-uterine gestation may be divided into two classes,—those in which the child is living and those in which it is dead.

Cleghorn, of Blenheim, N. Z., ⁴⁹_{Aug.} offers the following diagnosis:

1. The usual signs of pregnancy, illy defined or absent.
2. History of sterility or abortions.
3. Menstruation missed.
4. Uterus enlarged, permitting sound to be introduced three inches; uterus displaced to opposite side; neither ante- nor retro- flexion.
5. Bimanual evidence of tumor or increased necrosis of vaginal wall.
6. Fullness in Douglas's pouch.
7. Tenderness to touch of vaginal roof.
8. History of paroxysm; of pain localized to either inguinal region or lower abdomen, with intervals of little amiss.
9. Pulsating vessels, which were present in every case, and which must be considered as the most important positive final physical sign.
10. Hæmorrhage from uterus, which it is important not to confound with menstruation.
11. Passing of decidual casts without progressive dilatation of cervix.
12. Blanching; fainting; collapse; retention of urine.

Howard Barrett ⁴⁹_{Nov., '91} reported a case in which the following points were presented: 1. No long period of sterility preceded conception, as is frequent in these cases. 2. No marked symptoms during gestation seem to have called attention to its abnormal character. 3. The degree of exertion which the patient was able to make during the last sixteen hours of her life, and whilst hæmorrhage was more or less actively proceeding, was, to say the least, extraordinary. 4. No abnormality of the uterus was discovered. 5. The arrangement of placental tissue was unique. It consisted of three or four large patches of purple and apparently placental tissue, with sharply-defined margin. Two had slight vascular connection with each other, whilst the cord was isolated. The cord was connected with a large one in the centre with the long

axis of the cyst. These patches were not appreciably attached to the surface, but the structure dipped down deeply into the cyst-wall.

Progress.—Taylor ²²_{May 18} says that, in cases of extra-uterine gestation, some of the features deserving of the most attention are:

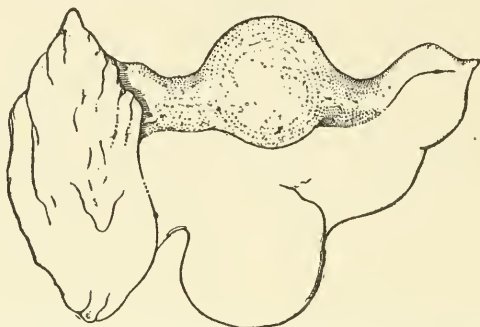


FIG. 1.—TUBAL PREGNANCY. UNRUPTURED. HÆMORRHAGE INTO PERITONEUM FROM OPEN FALLOPIAN TUBE.
(*Medical Press and Circular.*)

1. Hæmorrhage without rupture of the tube. 2. Recurring tubal rupture in the same tube. 3. A marked and persistent enlargement without rupture. 4. Diagnosis before rupture. 5. A cure without operative treatment. 6. The possible stages through



FIG. 2.—TUBAL PREGNANCY. UNRUPTURED. STATIONARY TUMOR WITH FOUR MONTHS' HISTORY.
(*Medical Press and Circular.*)

which tubal pregnancy may become abdominal, with development to term. There are three points in which he found that development of the fœtus may be met with in advanced ectopic gestation: (a) in the broad ligament, beneath the peritoneum, extra-perito-

neally; (b) in the intra-peritoneal sac, probably formed by local development of the Fallopian tube and broad ligament, in which the whole tumor is no more extra-peritoneal than is the pregnant uterus; (c) within the abdomen itself. In these cases the child is closely surrounded by omentum, and the placenta has attachments which are probably subperitoneal and tubal; but not all the pregnancies are originally tubal.

Barber¹⁰⁰³_{May} reports a case of adherent rupture of extra-uterine pregnancy in which the abdomen was opened and the sac was found to consist of the right ovary, which was of the size of a

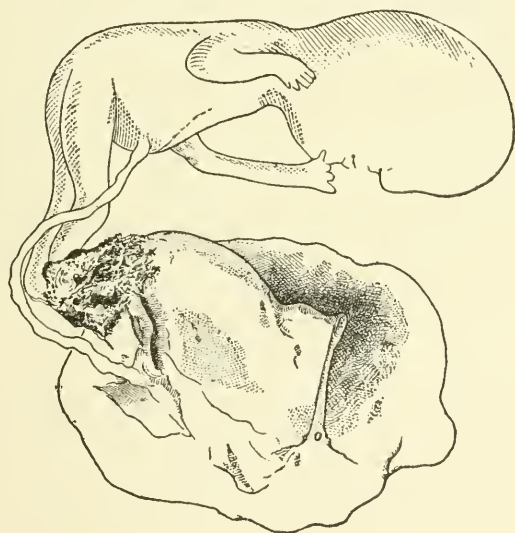


FIG. 3.—TUBAL PREGNANCY OF FOUR MONTHS' GROWTH, INVADING BOTH BROAD LIGAMENTS AND PERITONEAL CAVITY.
(*Medical Press and Circular.*)

hen's egg. The operation was hastily done, the condition of the patient being exceedingly bad, and she subsequently recovered.

Gusserow, of Berlin,²²_{May 18} says that rupture may take place from purely mechanical causes, by steady increase in size of the ovum without corresponding growth in the tube, or from a growth of the chorionic villi through the walls of the tubes, forming sieve-like perforations. The blood can be poured into the abdominal cavity and become encapsulated. It may take place between the layers of the broad ligament, producing hæmatoma of the broad ligament. In other cases hæmatoma occurs before rupture of the tube, and in others the tube does not rupture, but, owing to its

contractions, the ovum is discharged into the abdominal cavity. This has been very well called tubal abortion; it is always accompanied by bleeding, which may be fatal, or result in hæmatocele. Free hæmorrhage into the abdominal cavity generally occurred in those who had borne children. The patient may have supposed herself pregnant, or have no suspicion of it. There are general premonitory symptoms, as pain in the abdomen, followed by repeated collapse, the abdomen becoming distended and painful, pulse imperceptible, extremities icy cold, and, unless relieved, death takes place from hæmorrhage. The objective symptoms in such cases may be negative; so that the physician must operate for the general symptoms. We should not be deceived by improvement of symptoms. Hæmorrhage may set in from weakness of the heart, the pulse may be a little better, and the physician may be led to believe that the operation might be avoided; but on the least effort bleeding returns, with collapse and death. Where extra-uterine pregnancy is determined, without rupture, Gusserow considers operation better than the methods proposed for treating the condition by electricity, injections of morphine, etc.

Tait²_{may} condemns the term "tubal abortion," and says that in these cases the pregnancy begins in the mouth of the tube; the fimbria, being folded over it, become adherent to one another, thus forming a sac, and their separation is a rupture, just as complete as if the wall of the tube had given way, an eighth of an inch within the ostium. He objects to the term for these reasons: "1. It is wholly unnecessary, for the cases must be extremely rare; and, even if they were common, they present neither clinical nor classical features by which they could be set apart from cases of tubal rupture, nor do the surgical necessities of the two conditions differ in any way. 2. There is a positive danger in the introduction of a term as familiar as that of abortion, associated as it is with the every-day occurrence of a well- and properly- recognized procedure to be used, with a catastrophe so dire as that of intra-peritoneal hæmorrhage arising from tubal pregnancy. If the name should be established, the inevitable result will be that an idea of two conditions will be fostered in the minds of practitioners who are not specialists, one of which—a mere abortion—is of no moment, while the other is a rupture, and serious. Then we shall be told, when we are called to cases, that 'I wanted to see

whether it was simply a tubal abortion or not,' and we cannot wait too long."

Boisleux ²_{June 25} reported a case of operation for tubal pregnancy in which the patient recovered. A month later he was obliged to operate again for tubal pregnancy on the opposite side, from which the patient also recovered.

Bennett, of Detroit, ¹⁸⁵_{May} reports a case of extra-uterine pregnancy, occurring in a woman 32 years of age, who felt well up to within three weeks of the time he saw her. In getting out of a carriage she felt a sudden, tearing pain in the right side. She recovered from this, but noticed a discharge of blood at times, and occasionally profuse hæmorrhage, with bearing-down pains. A week later she was out walking with her husband, and, when going up the stone steps of the house, she was seized again with horrible pain and swooned on the floor. A physician was sent for, and prescribed for colic. She went for another week, and her husband was awakened by her moans at night. She thought herself to be dying, and a doctor was hastily summoned. He found her pale, weak, almost pulseless. She complained of pains, which were supposed to be those of a miscarriage; but, upon examination, the os was found to be firm, being pushed forward, and a large mass in the posterior *cul-de-sac*, which seemed to be firm, and resembled a half-grown placenta. He gave digitaline and atropine. Consultation was held, and the condition was pronounced to be pelvic hæmatocele, due probably to extra-uterine pregnancy. Operation was deferred on account of the patient's weakness. She lived twenty-four hours in great pain. Autopsy disclosed tissues bloodless, peritoneum black and bulging, the cavity containing a large quantity of clotted blood, as well as fluid. A sac close to the tube was ruptured, and a fœtus of three months was found in the left side.

Nash, of Bedford, ²_{July 23} reports the case of a woman, 40 years of age, who had had eight children; no miscarriages or abortions. The youngest child was 5 years old. She had noticed a movable lump on the right side of the abdomen for two years, which caused dragging pain, and the abdominal discomfort increased at the menstrual period. This movable lump was the right kidney, which could be displaced downward to the iliac fossa, across the spine from the left kidney, and upward under the ribs. The

uterus was retroverted, and to the left of it could be felt a small, tender lump about the size of a dove's egg. On placing the patient in the genu-pectoral position, the lump could be pushed out of reach. On the 17th of January, after sexual intercourse, she suffered violent pain and sickness. The abdomen the following morning was tender and the supposed ovary larger. On the 21st she was seized with violent pain in the left of the abdomen, sickness, diarrhœa, cold sweats, faintness. On the 22d was found extremely collapsed; pulse about 130. The abdomen was distended and tender; last period had been November 25th; she expected the next on December 25th. On that day a slight show commenced, which lasted three days; no pain that day, and she had no idea that she could be pregnant. Vaginal examination disclosed pelvic tenderness; lumps not so distinct, diffused fullness in its place. Patient supposed she had had a miscarriage, and bearing-down pains occurred during the night. Nash found in the bed a dried and clotted membrane, and came to the conclusion that there had been a rupture of an ectopic gestation sac, founding this diagnosis upon the following reasons: 1. The period had been passed, and it was seven and a half weeks since the last day of the last natural period. She had reached the time when rupture was most likely to occur. 2. There was a tender swelling on the left side of the uterus, which had become less distinct. 3. The uterus was enlarged, cervix soft, os patulous. 4. There was milk in the breasts. 5. There was marked collapse, signifying internal hæmorrhage. 6. There was a discharge of uterine decidua. He believed the rupture to be intra-peritoneal because of the great collapse, showing the large hæmorrhage; the rapid onset of peritonitis, and the absence of the mass fixed on one side of the pelvis, pressing on the rectum, such as he has felt in previous cases where the rupture had taken place between the layers of the broad ligament. Operation was done January 23d. The peritoneal cavity contained large quantities of dark-colored fluid and clotted blood. The left tube contained a mass about the size of an orange, and when it was peeled out of the pelvis the mass burst, allowing the amniotic fluid and fœtus to escape, the latter about three inches long. The tube was ligated and removed; the patient recovered, getting up on the sixteenth day. The sac removed occupied the outer half of the Fallopian tube, and was as large as a

duck's egg. The abdominal orifice of the tube was patent and patulous, easily admitting the point of the uterine sound. The cut end of the uterine end of the tube was also patulous, the ovary being situated beneath the sac.

Martin, of Fremont, Neb., ²³June reports a case of twin pregnancy in which one foetus was in the uterus and the other outside of it. Strecker ⁴¹Mar.10 reports an extra-uterine pregnancy in which the sac ruptured. Very profuse hæmorrhage took place and the patient died. Autopsy disclosed the presence of two foetuses, both males, in the sac.

Wallace, of Liverpool, ⁶May 7 showed a specimen of tubal gestation removed by operation. It is unique, from the fact that the foetus had partly extruded from the fimbriated end of the tube; so that the development had taken place between this end of the tube and the ovary. Pinard ⁴⁸July reports a case in which the product remained twelve months. Abdominal section; retention of the placenta within the foetal sac. Recovery, with a fistula. There had been induced a right salpingitis four years before the extra-uterine pregnancy. The symptoms were abdominal pain, trouble with micturition and defecation continuing since the last menstruation; neither sanguinary flow nor expulsion of decidua during the entire duration of the pregnancy. False labor appeared at term; mammary congestion occurred some four months before the cessation of the pains. Finally, in order to save life, operation was done, with retention of placenta.

Frommel, of Erlangen, ¹⁹Apr.30 states that his personal experience leads him to the following conclusions: 1. In fully-developed cases of advanced extra-uterine pregnancy operative interference is indicated in all cases. 2. In these cases total extirpation of the foetal sac should be aimed at, and a stitching of the sac to the abdominal wound should only be resorted to in cases of necessity. 3. It is not advisable to delay the extirpation until the death of the foetus, but to operate upon every case of extra-uterine pregnancy as early as possible.

Zweifel ⁹⁰Apr. reports four cases of elytrotomy, in three of which a supplementary laparotomy was necessary, the first being for severe bleeding due to wounds of the placenta; the patient died. In consideration of the case, Zweifel recommended that when elytrotomy is performed every preparation be made for abdominal

section simultaneously. Laparotomy, with extirpation or resection of the gestation sac, he found to give more satisfactory results. The entire removal of the placenta, the necessity of leaving the gestation cavity for slow detachment, the complete removal of the tube with the after-birth *in situ*, the curetting of the inner wall of the sac,—all were measures dictated by the special requirements of each case. His suggestion to detach the placenta to arrest the bleeding by tamponage would be considered questionable. Delaissement⁴⁸_{May 10} reports a case of ectopic gestation where section was done five months after the death of the fœtus at which the patient recovering.

DISEASES OF THE VAGINA AND EXTERNAL GENITALS.

BY J. M. BALDY, M.D.,

ASSISTED BY

FRANK W. TALLEY, M.D.,

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PHILADELPHIA.

CLITORIS.

Hypertrophy.—Berlin, of Nice, ¹⁷⁵_{Apr.} presented to the Société de Médecine et de Climatologie de Nice, March 25th, a small tumor of the clitoris, about two centimetres long and one centimetre broad, resembling the clitoris in form. Its surface was of a bright-red color, velvety, and secreting a sero-sanguinolent fluid. As the consistence of the tumor, its rapid development, and the pain which it provoked suggested the possibility of epithelioma, it was removed by thermo-cautery on account of its vascularity. Microscopical examination of the specimen demonstrated it to be a simple hypertrophy of the clitoris. McMordie, of Belfast, ²²_{Dec. 23, '91} reports a case of hypertrophy of the clitoris, in which the organ measured three inches in length and was of a dark-pink color and labiated.

HYMEN.

Imperforate Hymen.—Vanderveer, of Brooklyn, ¹_{Sept. 10} reports a case of imperforate hymen, with retention of menstrual blood, in a girl of 15 years. The girl had shown physical signs of menstruation, with the exception of the external flow, from the age of 13, regularly every twenty-eight days. There was increasing difficulty in evacuating the bladder at the supposed periods, and before she was seen by Vanderveer dysuria had never been absent. For forty-eight hours she had not been able to urinate. Inspection of the abdomen revealed a tumor similar to a seven months' pregnancy. After catheterization the vagina was found to be closed by a protruding, imperforate hymen, which, on being incised, allowed the escape, with some force, of dark, thick blood,

(H-1)

which was allowed slowly to escape. A case of imperforate hymen, in a child of 4 years, was reported by Minard, of Brooklyn, ¹_{Sept. 10} who also described two cases occurring in adults. In the first of these the hymen was incised, evacuating a pint ($\frac{1}{2}$ litre) of retained fluid. The second case was that of a woman with a history of scanty flow every month, and who was ill always during the time. The hymen presented two small openings on each side, just admitting a small uterine sound.

Kapelski ⁷⁸³_{May} was called to see a girl, aged 16, who complained of inability to urinate. After catheterizing her he noticed that the hymen was imperforate, projecting, and tightly stretched. He pierced it, letting out a great quantity of dark blood. The uterus was completely developed.

Cysts.—Cysts of the hymen are of such rare occurrence that Görl, of Munich, ⁹⁵_{B. 42, H. 3} could find but six recorded cases, all of which had been observed in infants. Görl reports a case from Ziegenspeck's clinic, which occurred in an adult. The patient complained of an itching in the external genitals, from which she had suffered since her fourth confinement, several months before. A yellow, bullet-shaped mass was noticed in front of a caruncula myrtiformis, which, on closer examination, was found to be a cyst, with yellow contents. It arose from the outer side of a caruncula myrtiformis, and had a diameter of three-quarters to one-half centimetre. Some large vessels coursed through its walls. Attempt at removal caused its rupture.

VULVA.

Pruritus.—Olshausen, of Berlin, ⁴¹_{Sept. 8} recommends for symptomatic pruritus the use of lotions of carbolic acid in 3-, 5-, or 8-per-cent. solutions in distilled water; also, painting the parts with solutions of nitrate of silver, between the applications of which 10-per-cent. cocaine ointment and cold compresses should be used.

Hæmatocele.—Stuver, of Rawlins, Wyoming, ⁶¹_{Feb. 13} reports a case of pudendal hæmatocele occurring as the result of a fall upon a railroad track, in which the patient struck the labium and perineum upon the iron rail. A rupture of the tissues on the inside of the labium took place, and fluid blood escaped. A clot the size of an orange was removed, and the cavity washed with hot sublimate solution (1 to 4000), and packed with cotton

pledgets moistened with 1-to-3000 sublimate solution. He believes that pudendal hæmatocele is of rare occurrence, and is always produced by external violence. If the effusion is extensive, he advocates free incision, removal of clots, and free irrigation of the cavity with a reliable germicidal solution, used as hot as can be borne for its hæmostatic effect. Hæmorrhage should be controlled by tampons, pressure, and such means as the exigencies of the case may demand.

Conglutinatio-Labiorum.—Two distinct forms of adherent labia were described and illustrated by Sanger, of Leipzig.³¹
In the first form the labia majora were united by a thin membrane of the mucous type, which reached forward to the clitoris. Close behind the clitoris was a minute orifice, through which the urine could pass in a full stream. On gentle pressure the membrane was torn through, revealing the normal vestibule beneath. This membrane proved to be the labia minora united together. In the second form the vestibule easily allowed the passage of the finger, but the introitus was reduced to a slit, three-fifths of an inch long, immediately in front of the perineum. From this slit forward to the mons veneris extended a broad and very conspicuous membrane, which stretched across between the labia majora, forming a complete covering, extending to the margin of the hair on each side. This membrane was over two inches long and over one inch broad, of a brownish tint, bearing scanty hair, and marked with a pale central raph. On cutting it through with scissors, there appeared a wound on each greater labium. As this case gave a history of having had a yellowish discharge during infancy, Sanger believes the *conglutinatio-labiorum* to have been the result of a *vulvo-vaginitis*.

Thrush of the Vulva.—Giulini, of Nuremberg,³⁴
reports a case of thrush of the vulva, occurring in a young woman two months pregnant. Two months previous to her attack, one of her children had an attack of thrush. The patient suddenly became ill, and suffered intolerable burning and itching in the vulva. The labia majora and minora were much swollen. The nymphæ were of a deep-red color, and dotted over with small white spots. On gently brushing the spots, they were removed, leaving behind very superficial breaches in the epithelium. The disease spread rapidly, involving the entire vulva and part of the

vagina, which appeared as though covered with thin, film-like layers of curds. The disease responded to the application of lead-water compresses and vaginal injections of a solution of carbolate of lime.

Elephantiasis.—Pottie²²⁰_{Nov. 13, '91} reports a case of elephantiasis of the labium major, occurring in a woman 64 years of age. When 32 years old she developed an elephantiasis of the left labium, which reached the size of a fist, and was then removed by the bistoury. Division of the pedicle was followed by a copious hæmorrhage; recovery was slow, but without any return of the disease. Thirty-two years later she consulted Pottie for an analogous tumor of the right side, but much more developed than the first. The weight of the mass rendered locomotion difficult, and for two months there had been a very fetid discharge, due to a partial necrosis. The tumor had almost attained the size of the adult head, and was evidently dependent from the right labium, although, from its exaggerated size, it had attached itself to the neighboring parts. It was covered above by the skin of the pubes; had considerably displaced the urethra, and slightly the anus. The ulcerated portion corresponded to the postero-inferior aspect of the mass, and was situated so close to the deformed vaginal orifice as to lead to the suspicion that it was an ulceration of the right vulvo-vaginal gland. Ablation of the tumor was practiced, under chloroform. The after-treatment consisted in a simple dressing with Van Swieten's liquid, and abundant lotion with the same solution after each micturition. Union by first intention was obtained.

A case of labial elephantiasis was reported by Bertrand,⁹⁹⁶_{May 25} in a woman, 29 years of age, in whom there were two large tumors corresponding to the labia majora, giving, at first sight, the appearance of one mass. Histological examination of the tumor, after removal, revealed an hyperplasia of the connective tissue, with dilatation of the capillary and lymphatic net-works.

Gärtner¹³³_{May 25} reports a case of elephantiasis of the left labium, with cutis pendula of the right. The patient was 60 years old, and the left labium hung down to the knee. At the base of the tumor, extending to the anus, were condylomatous growths. After separating the tumor slowly, on account of its vascularity, and removing the cutis pendula of the right side, the condylomata



Fig 1



Fig 2

Hypertrophy of Skin of Vulva and Neighboring Parts, (Baldy)

Annals of Gynaecology and Paediatrics

were removed with the thermo-cautery. The elephantiac left labium, on removal, weighed 4 pounds (1815 grammes).

Benicke, of Berlin, ³¹_{No. 27} reports a case of elephantiasis of the labium minorum. The growth was first noticed, after childbirth, as a small, red mass on the right labium minorum. It gave no trouble for a long time, when it suddenly began to increase in size, and within twenty-four hours grew as big as a pigeon's egg, and became painful. The growth resembled a bunch of a dozen small, blue grapes, without stalk, and was pedunculated. Benicke looks upon the growth as elephantiasis, which is rare in the labia minora.

Hypertrophy of the Skin.—Baldy, of Philadelphia, ²³_{Dec., '91} reported a case of hypertrophy of the skin of the vulva and neighboring parts, in a colored woman, aged 35 years, giving a negative history of syphilis. The growth began ten years previously, in the form of teat-like nodules, in the region of the anus, which, being repeatedly pulled off, returned as larger, sessile growths. These progressed until the present condition was reached. Both labia majora were hypertrophied, the labia minora but slightly involved. The hood of the clitoris was much enlarged and thickened. Independent nodules as large as a bean were scattered over the mons veneris. Irregular masses of hypertrophy extended over the perineum, completely surrounding the anus, and spread over the gluteal tissues. There was a constant slimy discharge from the anus, although the sphincter was under good control.

Neoplasms.—Dunning, of Indianapolis, ⁶¹_{Feb. 13} operated upon a colored woman, upon whose external genitals grew a number of neoplasms of different shapes and sizes. The largest was as large as an orange, pedunculated, and grew from the clitoris and upper portion of the labium. The smaller ones were scattered over the labia and perineum. There was a history of syphilis.

Atheroma.—Kimura ²⁰⁰_{Jan. 23} removed an elliptical, atheromatous tumor, extending from the left labium major to the hip. The tumor contained "brownish, gray-green, odorless, paste-like matter, resembling the fæces of a jaundiced patient."

Fibroid.—Lockhart, of Montreal, ¹³⁰_{Jan.} removed by Paquelin's cautery a fibroid of the left labium minor, which was attached by a pedicle one and one-half inches long.

Cancer.—Ozenne ¹⁴_{May 16} states that clinical facts prove that car-

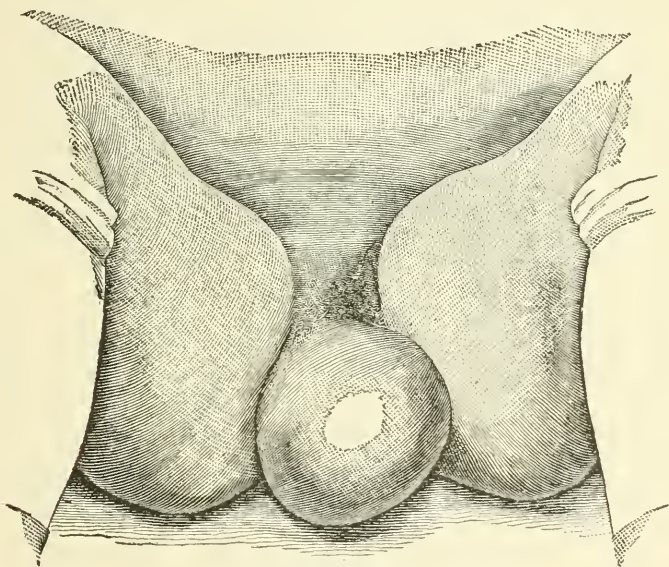
cinoma does not show a very great predilection for the labia majora, properly so called, and, because of the relative rarity of the localization of the disease here, he quotes two cases that have recently come under his observation, in women of 41 and 45 years of age, respectively. In the first instance the tumor had invaded the iliac fossa, and it was only possible to remove the labial portion of the growth. About one year later the patient succumbed to a generalization of the disease with hepatic and intestinal involvement. According to the author, palliative treatment is indicated when a generalization of the neoplasm has already occurred, or where it has so invaded the neighboring tissues that ablation has become impossible. The indications then are to destroy the fetid odor, arrest the ichorous discharge and the hæmorrhages, and prevent irritation of the surrounding parts. This may be accomplished by means of antiseptic washes and disinfectants (carbolic acid, permanganate of potash, etc.), with frequently-renewed dressings of iodoform gauze. Inunction of boracized vaselin will prevent irritation of the adjoining tissues. The only way by which the progress of the disease may be arrested is by complete extirpation of the growth, and for this purpose the cutting instrument is preferable. This may be supplemented by cauterization of the base with chloride of zinc, if necessary; otherwise, the borders of the wound may be united by sutures of Florence silk and an antiseptic dressing applied.

Two cases of malignant disease of the vulva have been reported by Adam, of Melbourne,²⁸⁵ July 15, in both of which there was involvement of the urethra. In one of the cases the growth was removed. Adam believes that operation is indicated in these cases for palliation.

Epithelioma.—Syme, of Melbourne,²⁸⁵ July 15, reports a case of epithelioma, primarily of the vulva, and involving the vagina for about one inch. The vagina was partly filled by the growth, which extended up to, but did not involve, the urethral orifice. Syme dissected out the growth and brought the skin and mucous membrane together with silver sutures.

Cysts—Hydrocele.—An interesting case of hydrocele, in a woman 45 years of age, is reported by Ch. Roersch.²⁹³ Dec., '91 The woman presented, upon the right labium majora, a tumor of considerable size, extending toward the external inguinal canal, of

an elastic consistence, pseudo-fluctuating, painless, giving a heavy sound upon percussion, and irreducible into the abdomen. This tumor had developed within a year without any appreciable cause. Incision in the long axis of the tumor opened a cavity closed on all sides and filled with a lemon-yellow fluid. Floating in this liquid was a small, elongated sac, thin and transparent, filled with a colorless liquid, and adherent to the upper angle of the cavity of the hydrocele. This was evidently an old hernial sac, congenital in origin; adhesions had formed around the neck, between the hernial sac and the walls of the canal of Nuck, in which the



LARGE CYST OF THE RIGHT LABIUM.
(*Annals of Gynecology and Pediatrics.*)

hydrocele was secondarily developed. The cavity of the sac itself had become obstructed and transformed into a cyst. The small cyst was excised and the cavity of the hydrocele completely closed by sutures in tiers. The operation was not followed by any reaction, and the patient left the hospital, twenty days later, completely cured.

Labial cysts are reported by Martin, of Michigan University,¹⁹⁰² and Hirst, of Philadelphia.²³ In Hirst's case the cyst was of the right labium, and on incision evacuated 28 ounces (780 grammes) of dark, chocolate-colored fluid. The cyst appeared after childbirth, and had been growing for nine years.

URETHRA.

Epispadias.—Although this condition in the female is exceptionally rare, two cases have been reported. Auffret, of Brest, ³_{Apr. 20} encountered, in a young girl of 19 years, a malformation of the urethra, to which he gives the name of epispadias. This patient suffered from incontinence of urine from infancy, but this incontinence was not absolute; she was able to retain the urine for an hour or two, especially during the day. This infirmity was due to a pronounced deformity of the external genitals, and especially of the urethra. The meatus was represented by a simple linear cleft of ten or twelve millimetres, the lower lip alone being marked. Above, the mucosa was arranged in the form of a rosebud. The urethral canal and the clitoris were absent, and the labia minora were only partially present. The hymen was intact, but dilated to permit the passage of an entirely prolapsed uterus. The condition was partially ameliorated by a plastic operation. Alexander, of New York, ²⁴⁵_{July} reports a very interesting case. The girl was shorter than the average female at 16 by several inches, well developed and muscular, with prominent breasts. The mons veneris was thin, not prominent, and the anterior face of the symphysis covered by a semimucous membrane, which was continuous below with the mucous membrane of the bladder and above with the skin over the abdomen. The mons veneris was almost destitute of hair; the labia majora were small, meeting in front of the vagina, but widely separated above. The labia minora were small and distorted. There was neither clitoris nor prepuce. The bladder opened just beneath the pubic arch by an irregular hole, one and a half by one and three-fourths inches, easily admitting the finger. The urethra was entirely absent (see colored plate, Fig. 1). The opening was less than one-half inch in length, through which the interior of the bladder was visible. The vagina was normally situated, but small, and its orifice closed by a strong, circular hymen, with a central opening. The uterus was small, but otherwise normal. The bladder retained 1 ounce (30 grammes) of fluid when the child assumed the dorsal position; none was retained when in the erect posture, except when the thighs were held firmly together. The operation consisted in making a new urethra and in bringing together the upper portion of the labia majora so as to cover the orifice of the new canal. An irregular, curvilinear incision was



Fig 1

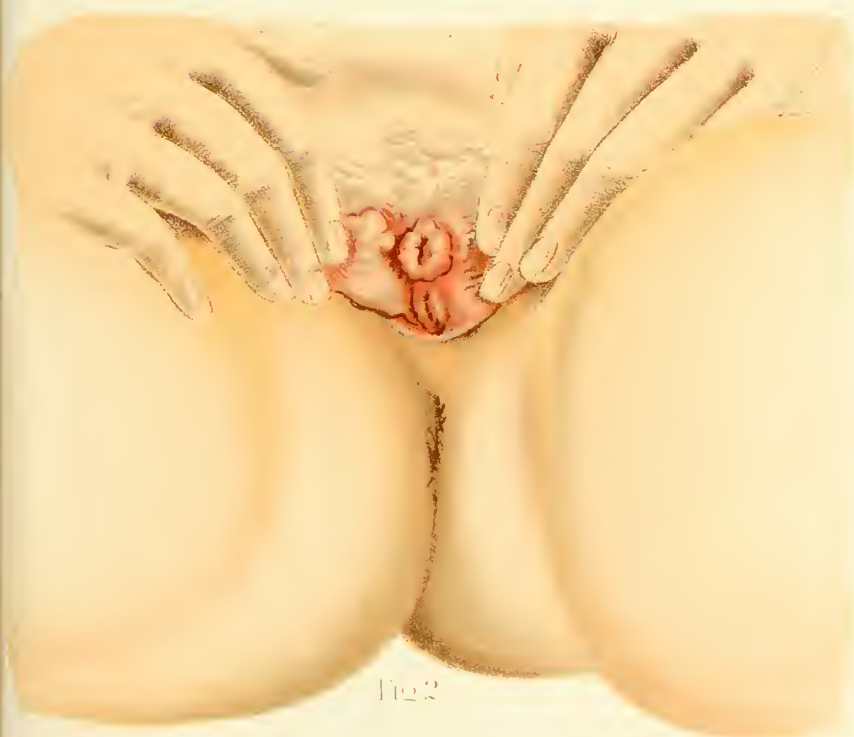
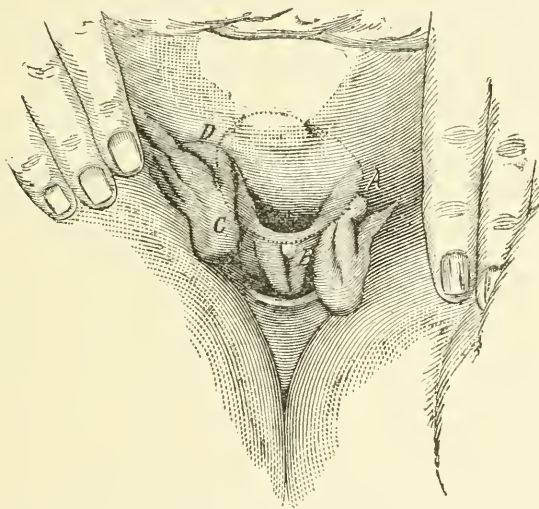


Fig 2

Fig 1 Absence of Prethra and Congenital Deformity of
 External Genitals in a Girl Aged 16 Years
 Fig 2 Result of Plastic Operation to Correct Deformity (Alexander)

made, beginning at a point below the opening in the bladder, which it surrounded at a distance of about one-half inch. (See cut.) The mucous membrane and skin included in this incision were dissected up toward the vesical orifice; the dissection was carried as far as possible beneath the arch of the pubes and the neck of the bladder, freely separated from the latter. The lower margin of the opening into the bladder was loosened from the vaginal septum as far as could be safely done. The flap thus made resembled a wide-mouthed funnel, the bottom of the funnel being the opening into the bladder. In order to narrow the orifice



CONGENITAL DEFORMITY OF THE FEMALE GENITALS.
(*Journal of Cutaneous and Genito-Urinary Diseases.*)

portions of the border *A-B* and *C-D* were united (see cut) and three rows of purse stitches were introduced upon the upper and outer surface of the urethra. The first row was placed at the neck of the bladder, the third near the orifice of the funnel, and the other row midway between these. This formed a new urethra, admitting a No. 18 French catheter and about three-quarters of an inch in length. The urethra was twisted upon itself and stitched in place by uniting the portion of its margin *C* and *D* with the vaginal septum. The space from which the flap had been taken was closed. The upper portions of the labia majora were loosened and brought together, and to the inner side of these the upper margin of the

urethra was stitched. Immediately after the operation the bladder retained 10 ounces (300 grammes) of fluid. A catheter was introduced into the bladder, through the urethra, and removed on the fourth day, when the urethra had united well; but there was separation of the upper portion of the labia majora, which deprived the urethra of the pressure necessary to insure complete retention of urine. A secondary operation was performed in two sittings. At the first the urethra was again dissected free from the pubic arch and narrowed by making two external pleats running the length of the canal and then stitched in place. A week later the upper part of the inner surfaces of the nymphæ were refreshed and brought together to press upon the urethra. The girl now has control over her urine at all times, for four hours during the day and eight hours at night.

Total Destruction of the Urethra.—Frœlich, of Nancy, ¹⁸⁴_{Nov. 15, '91} has treated of an entirely new subject, upon which the classical books are absolutely silent. In fifty-three cases which he has succeeded in gathering from medical literature, the causes of this condition have been varied; the most frequent being obstetrical traumatism, crushing by the foetal head, tearing by the hook or forceps, rough catheterism, careless introduction of the finger or speculum, etc. Other causes are: Inflammation or neoplasms, syphilis, diphtheria; ordinary traumatism, irrespective of accouchement; forcible dilatation of the canal for the extraction of voluminous calculi, as in the case reported by Heydenreich; or congenital absence and religious mutilations. The various procedures employed in the treatment of this condition Frœlich groups in several classes: Restoration of the urethra from its *débris* (operations of Freund, Schroeder, and Pozzi); restoration of the canal by the aid of flaps taken from the vagina (operations of Lawson Tait, Emmet, Lücke); restoration of the urethra by a vesico-vaginal flap (operations of Schroeder and Freund, combined method of Heydenreich); restoration of the inferior wall by means of the labia minora (operations of Fritsch, Polaillon); closure of the vaginal opening of the bladder and the creation of a hypogastric fistula (operation of Rütenberg), or of a subpubic fistula (operations of Emmet, Baker); occlusion of the vagina after the creation of a recto-vaginal fistula (operations of Jobert of Lamballe, Rose); finally, the special colpocleisis of H. Kidd, consisting in the occlusion of the vagina, with the exception

of a long and straight canal, destined to replace the urethra. The ultimate result of the surgical interference depends entirely upon the judicious choice made by the surgeon from the methods at his disposal. If the posterior wall of the urethra and the vesical neck have only been divided, a freshening followed by sutures will give success; but if the conditions are less favorable, a larger operation in one or two sittings will be necessary. In some cases the canal may be re-established, but the incontinence persists. For these cases Frœlich describes a complementary operation, done by Pawlik, which, by lengthening and narrowing the canal of the urethra, often gives the patient voluntary control over micturition. If this operation fail, the compression of Trélat may overcome the incontinence, by means of a bandage ingeniously applied.

Endoscopy.—Ebermann²¹_{No.47, '91} finds that the endoscopic appearances in the female urethra, in acute gonorrhœal urethritis, are the same as in the male. Strictures he has rarely found, and those seen were usually of traumatic origin. Grünfeld⁴⁹_{May} describes fissures at the neck of the bladder, best seen through a fenestrated instrument, which he treats by the direct application of nitrate-of-silver solutions (1 drachm to 1 ounce—3.75 to 30 grammes), followed by the application of muriate of cocaine.

Stricture.—Otis⁵⁹_{v.41, No.2} calls attention to the value of exploring the urethra in those cases of bladder trouble where relief is not obtained by ordinary measures. Such symptoms may be of reflex origin. In the treatment of stricture of the female urethra he recommends divulsion. The calibre of the canal should be maintained, after this procedure, by the patient herself introducing, daily, a closed urethrometer into her bladder, expanding it to the required degree, and then withdrawing it. Bridges, of Omaha,¹⁰⁶_{June} believes that stricture of the female urethra is of more common occurrence than is supposed. He cites a case in which a small pocket-case probe was passed with difficulty into the bladder.

Urethrocele.—Ozenne¹⁴_{Jan.3} has seen but three cases of this affection in two thousand five hundred gynæcological patients, covering a period of eight years. The treatment adopted may be either purely medical—which, with some, especially Newman, has been successful—or surgical. The latter may consist of an incision with the thermo-cautery (Lannelongue, Duplay); incision with the galvano-cautery (Chéron); the bloody operation,—incision of the

pouch in its long axis (Duplay, Trélat); or resection of the pouch (Lawson Tait). Finally, the median incision may be made, with excision on either side of a small flap. In any case the wound is dressed antiseptically, and catheterization practiced three or four times in the twenty-four hours.

Prolapse.—Kleinwächter¹⁴⁷_{May} has observed two cases of prolapse of the female urethra. From investigation of the subject, he finds it most frequent in children; next to children, but less often, it occurs in women past the menopause.

Caruncle.—Jackson, of Houston, Texas,⁸⁵_{July} in reporting a case of urethral caruncle, calls attention to the value of naked-eye inspection of the genitalia, as a first step to examination, in all cases presenting symptoms of urinary disturbances.

Polypus.—Mucous polyps are rather frequent, and are variously designated under the names of vascular tumors, irritable caruncles, and polyps. Delefosse, of Paris,²⁴_{May 8} favors curettement and swabbing out of the urethra, and considers such a mode of treatment preferable to the other methods in vogue, which are frequently followed by complications, such as hæmorrhage and cicatricial narrowing. This course of treatment has already been indicated for the male urethra. After dilatation of the urethra, with antiseptic precautions, using Simon's dilators, the spoon-curette (used in curettement of the uterus) should be introduced, and the mucous membrane of the urethra gently curetted until all roughness is removed; there should be but very little bleeding. The operation should be ended by swabbing the urethra out with a mop soaked in camphorated naphthol. A piece of iodoform gauze should then be placed in the vagina and over the urethra, and the vulva covered with a pad of wadding.

Henry, of Princeville, Ill.,¹¹⁵_{Apr.} reports the case of a woman, aged 48 years, with a history of pain in sitting and in copulation, in whom he found a sensitive tumor, "resembling in size and color a drop of blood," and very soft in consistence. It was attached to the mucous membrane on the anterior part of the urethra. Its removal with curved scissors gave relief to the troublesome symptoms.

Fibroma.—Charpentier, of Paris,¹⁹⁴_{No. 1} removed a fibroma from the female urethra, which was thought to be a myoma until after extirpation. These cases are much rarer than fibromata of the vagina.

Vascular Tumors.—McMordie, of Belfast, ²²_{Dec. 23, '91} found obstruction to the passage of a catheter in a woman, aged 54, who had a history of frequent and painful micturition. After dilating the urethra he found a vascular growth near the neck of the bladder, which he removed without difficulty.

Cancer.—Munn ⁹_{Apr. 30} reports a case of malignant disease of the urethra in an unmarried woman 64 years old. The labia were greatly swollen and ulcerated, and the clitoris was involved. There was an infiltration of the anterior vaginal wall, in the line of the urethra to the base of the bladder. A case of epithelioma of the meatus urinarius, in a woman aged 60 years, is reported by Steele, of Clifton, England, ⁶_{Jan. 9}. The growth surrounded the meatus and extended backward to within half an inch of the bladder. Steele removed the growth with an écraseur. Ehrendorfer ³¹⁷_{No. 17} reports a case of sarcoma of the ureter in a woman 50 years old. The growths, three in number, surrounded the meatus and, pushing the labia aside, rose high, like cockscombs, extending from before backward. Each measured about one inch in length.

BLADDER.

Enuresis.—In the operative treatment of incontinence of urine of urethral origin, Pousson ²⁵_{June} combines the method employed by Duret (incurvation of the axis of the urethra, elevation of the meatus, lengthening of the posterior wall) with that devised by Gersung (torsion of the urethra). He commences with the operation upon the urethra. A large bougie being introduced into the latter, he makes a circular incision around the meatus about one-half centimetre from its margin, and dissects up the canal to the extent of about one and a half centimetres. He then incises vertically the tissues of the vestibule up to the base of the clitoris. The bougie now being withdrawn, he rotates the urethra upon its axis nearly 120 degrees, drawing it at the same time forward and upward into the angle of the bleeding surface produced by the vertical incision of the vestibule. It is fixed in this position by a series of catgut sutures, reuniting it to the tissues of the vestibule, from which it had been isolated. These sutures occupy only the two upper thirds of the circumference of the urethra, and form, in consequence, a horseshoe curve. Instead of suturing the lower third to the neighboring parts, he reunites between them the lips of the

gaping wound resulting from the elevation of the urethra to the root of the clitoris. The operation terminated, the parts present the following aspect: The meatus, reduced to a transverse cleft, is hidden beneath the clitoris; the canal, instead of being horizontal, which is the normal direction when the woman is on her back, describes a strong curve, with the superior concavity embracing the pubes; a sound, introduced into its interior, is nearly vertical; finally, the calibre of the urethra is strongly narrowed, in consequence of the rotation that has been made. The operation upon the canal being completed, he proceeds to the restoration of the perineum, and performs a colpoperineorrhaphy. Narieh, of Smyrna,¹⁹⁴_{Nov., '91} reports two cases of incontinence cured by massage of the urethra and of the neck of the bladder. This is performed in three stages, as follow: *First stage, massage of the vesical region contiguous to the neck.* The right index finger, well greased, is introduced as far as possible beyond the neck of the bladder; then, by a reversed pendulum movement, all of the vesical surface that can be reached by the finger is pressed toward the vagina. In this movement, which is repeated four to eight times, the palmar face of the index finger should tend to approach the posterior face of the symphysis, but without actually doing so, for in this case it will massage only the vesical neck. *Second stage, massage of the body and sphincter of the bladder.* This is the main part of the treatment. The index finger is passed lower down, and the neck and neighboring portion of the bladder is pressed against the posterior face of the symphysis. At the same time the finger performs the to-and-fro movement strongly enough to compress the organ against the pubes, but gently and without jerking. *Third stage, massage of the urethra.* The index finger is still lowered and the urethra compressed from below upward, an antero-posterior movement being made four or five times, at first directly upon the inferior face of the urethra throughout its whole extent, and afterward upon the furrows that may be felt toward the lateral margins of the canal, especially when they are thickened. Kesteven, of England,²⁶_{Mar.} vigorously attacks this treatment, believing that, viewed from an æsthetic as well as a moral point, it should not be performed.

Cystitis.—Parvin, of Philadelphia,⁷⁶⁰_{Feb. 6} reports two cases of cystitis rapidly cured by irrigations of the bladder with creolin

solution, 1 drachm (3.75 grammes) to a quart (litre) of tepid water. Mundé¹⁰¹_{Mar.} advises the examination of the urine for albumen, where patients present bladder symptoms. He has seen the diagnosis of periovaritis made where the symptoms were caused by recurrent attacks of renal colic and the passage of small calculi down the inflamed ureters. He disfavours the passage of the catheter under cover, advising the separation of the labia and cleansing of the vestibule with bichloride solution before the introduction of the instrument. He uses a glass catheter taken from a bath of mild carbolic solution.

Neuroses.—Moore, of Los Angeles, ⁴⁴_{Dec., '91} believes that an irritable bladder does not represent a pathological state, but is a symptom of some other trouble. He has relieved this troublesome symptom, in one case, by curettement of the uterus; in another, by removal of a polypus from the urethra. A case of nervous bladder, caused by mental worry, is reported by Goodell, of Philadelphia. ²³⁴_{Nov., '91} Olshausen, of Berlin, ⁴¹_{Sept. 8} suggests, for the relief of this condition, the cocainization of the bladder mucous membrane by the injection, after evacuating its contents, of a small quantity of a 7- to 10-per-cent. solution of cocaine, which should be retained from one-half to one hour.

Foreign Bodies.—Numerous cases are reported, some of considerable interest. Caldani ⁵⁰⁵_{Nov., '91} removed a hair-pin from the bladder by means of a corkscrew. Moulouguet ²³⁰_{June} also removed a hair-pin encrusted with phosphates and sediments, which the woman claimed to have accidentally swallowed. Loumeau, of Bordeaux, ⁷⁸⁰_{Jan.} removed the stem of a clay pipe from the bladder and urethra of a young girl of 18 years. Lohnstein, of Berlin, ⁶⁹_{Sept. 22} reports the case of a girl in whom an occlusive pessary, introduced into the vagina before coitus, had found its way into the bladder. He extracted it, encrusted with urinary salts, from the anterior part of the bladder above the urethra. Lloyd, of New York, ¹³⁹_{Oct.} removed the rectal end of a syringe from the bladder of a woman, who introduced the syringe-nozzle into her urethra while taking a vaginal douche. Manton, of Detroit, ¹⁰⁰³_{Apr.} reports a stiletto, four or five inches long, removed from the bladder. A case of hair-pin in the bladder was reported by Stamford, of Tunbridge Wells ²_{May 14}; while Hunter McGuire, of Richmond, Va., ²³_{May} removed a piece of male catheter and three hair-pins, two of which had become the nuclei of stones.

Calculus.—A stone weighing 200 grains (13 grammes), and measuring one inch and a quarter by seven-eighths of an inch, was removed from a girl, 8 years old, by Bidwell, of London, ⁶ Nov. 7, '91 through a supra-pubic incision. The nucleus of the stone was an oxalate, covered by many layers of phosphates and urates. He believes that, as the choice of operation for the removal of a stone of any considerable size lies between supra-pubic cystotomy and lithotomy, the supra-pubic operation is preferable, on account of the contracted state of the bladder always co-existing, and the consequent inability to retain fluid in it. Davis, of Philadelphia, ²³ Feb. reports a small phosphatic stone removed by Ashhurst, from a girl aged 3 years. Cases of vesical calculi have also been reported by Polie, ²⁹³ June Stékoulis, ²³² July 30 Hue, ⁶⁷ July 15 and Hartmann. ⁴⁸ Dec. '91 Hartmann's case is of special interest. In 1887, the patient, 25 years of age, suffered damage to her bladder during a forceps delivery. About nine plastic operations were attempted to cure the fistula. In July, 1881, she commenced to suffer from cystitis, and, on examination, a calculus was discovered in the intensely tender bladder. Supra-pubic lithotomy was performed, and a phosphatic calculus, weighing nearly 1 ounce (31 grammes), was removed. This was found to have, as its nucleus, a piece of silver wire. The patient recovered from this operation, and, two months later, submitted to a plastic operation for the cure of the vesico-vaginal fistula. In paring its edges, the point of a needle, a quarter of an inch long, was found imbedded in the tissues. After this proceeding the patient was restored to perfect health. Hue's calculus was removed from a young girl of 13 years, and had for its nucleus a fragment of bone that had found an entrance into the bladder from the breaking of an abscess consecutive to a Pott's disease of the lumbar vertebræ.

Cases of calculi forming around hair-pins which have been introduced into the bladder have been reported by Braidwood, of Willesdan Green, England, ² June 4 and Cowper. ² July 2 In Cowper's case the stone weighed $4\frac{1}{2}$ ounces (140 grammes), and was removed by supra-pubic operation. His patient died, on the fifth day after operation, from peritonitis, caused by the perforation of an ulcer formed by the pressure of the stone.

Fissure.—Heitzmann ¹⁶⁹ Feb. calls attention to the fact in the pathology of chronic cystitis, that the mucous membrane becomes

thickened and swollen, and that the union of its epithelium with the surrounding cells is weakened, so that large quantities are continually thrown off. The renewed epithelium is less resistant and so tender that slight causes are sufficient to occasion a lesion of continuity in the covering, or cellular layer. Under such conditions, erosions and fissures in the bladder mucous membrane are easily produced, allowing entrance of the retained decomposing urine into the subepithelial tissues. This greatly increases the intensity of the cystitis. Heitzmann believes that many of the cases described as irritable bladder neuroses are cases of inflammatory affection of the bladder, complicated by fissure of the mucous membrane. These fissures may be located by the combined vaginal examination of the bladder, or by the endoscope. They are often of gonorrhœal origin. Cohabitation in narrow vaginas favor their formation. The passage of the catheter and the use of badly-fitting or rudely-introduced pessaries are the most common traumatic causes. Many cases heal spontaneously in a few days. This is not to be expected, however, as the healing is disfavored by the urine, which, in many of the catarrhal conditions accompanying, is acid or ammoniacal. The wound may be immediately infected by the catheter, if so produced. For the treatment of the fissures he recommends direct applications of astringents, as nitrate of silver, applied with a pencil, or on a tuft of cotton, to the fissure, through the endoscope, or under the guidance of the finger in the vagina.

Rupture.—Lloyd, of the Pembroke-shire Infirmary, ⁶Feb. 6 reports a case of extra-peritoneal rupture of the bladder, occurring from injury in a railroad accident. A supra-pubic incision was made a month after, and a large slough removed, together with a quantity of foul-smelling, purulent urine. The cavity was drained, and a good recovery followed. A case of intra-peritoneal rupture, following a kick on the abdomen, is reported by Hektoen, of Chicago, ¹³⁹Oct. The patient lived nine days, and, after death, the peritoneal cavity was found to contain $3\frac{1}{2}$ quarts (litres) of clear urine, with no signs of peritonitis.

Tumors.—Caddy, of London, ²⁶Dec. 1, 1901 removed a friable, pedunculated, villous tumor of the bladder, from near the right ureteral orifice, by breaking the growth up with his finger, and then scraping the pedicle flush with the bladder-wall by the finger-

nail. The operation was conducted through the urethra, which was afterward dilated to four and one-eighth inches, for the removal of the fragments. Despite the extensive dilatation, the patient retained her water by the seventh day.

Instruments.—Ziegenspeck³¹⁷_{Apr. 23} recommends the use of simple straight glass tubes, ten centimetres long and cut obliquely on one end, for catheterizing and irrigating the bladder. The advantages are the ease of disinfection and the cheapness and readiness with which it can be improvised.

FISTULÆ.

Vesico-Vaginal.—Bardenheuer⁶⁹_{No. 50, '91} reports two successful closures of vesico-vaginal fistulæ by transplantation of the bladder-wall. His technique is as follows: Supra-pubic cystotomy is performed in Trendelenburg's posture. The peritoneum is dissected off of the anterior surface of the bladder as low as the fistula. Adhesions and cicatricial tissue in the vicinity of the bladder are now separated, the edges of the fistula denuded and pressed together, by a finger passed into the bladder through the supra-pubic wound. Silver-wire sutures are introduced from the vaginal side. The artificial wound is left open and plugged with gauze, and catheterization practiced every three hours. He has shown, in two cases,²²_{June 15} that the closure of large fistulæ, when the whole of the fundus and a large part of the posterior wall of the bladder have been lost, is quite possible. He freed the remainder of the posterior wall, as well as the lateral walls, using them by transplantation as a remedy for the defect. Dunning, of Indianapolis,⁶¹_{Feb. 13} reports the successful closure of a vesico-vaginal fistula by denuding from around the fistula a strip of tissue a quarter of an inch in width and closing with silk-worm-gut sutures.

Michaux³_{May 7} has suggested a method of treating cervical or juxta-cervical fistulæ, surrounded by cicatricial tissues, and accessible only with difficulty. In these cases the direct vaginal operation is often impossible, and it is necessary to overcome the difficulty by practicing occlusion of the vulva and vagina. This palliative method is not without its inconveniences and dangers. It is only with great repugnance that women consent to be deprived of their vagina; and, frequently, after having consented, they demand to be restored to their primary condition. Michaux suggests

approaching these cases by utilizing the ischio-rectal passage, an absolutely new operation in its application to the cure of vesico-vaginal fistulæ. In operating, the patient should lie upon the side, the trunk and head inclined forward, the corresponding thigh more flexed than that of the opposite side. Parallel to the fissure, between the buttocks and the width of the thumb above this fissure, an incision ten centimetres long is made, commencing behind, nearly at the level of the anus, and ending in front, nearly at the intersection of the corresponding labium major and the ischio-pubic bony arch. Through this incision the ischio-rectal fat may readily be reached, and no important organ disturbed. The hæmorrhoidal nerve and arteries are easily avoided. Upon the inferior face of the opening a finger introduced into the vagina may be readily felt. This is the ischio-rectal passage, formerly suggested by Hégear, in searching for pelvic abscesses, and also recommended by Sänger; it is also that which is followed in the vertical perineotomy of Pozzi. The next stage of the operation is an incision through the vagina in its upper portion, after which the fistula is closed as usual. Then the incision into the vagina is closed, the ischio-rectal fossa packed with iodoform gauze, and the perineal wound closed by *fil de Florence* sutures.

Trendelenburg, of Bonn, ⁶⁹_{June 8} reports two cases of vesico-vaginal fistula operated upon through the bladder. In the first case he made a transverse incision, through skin, fasciæ, and recti-muscles, above the symphysis pubis. The bladder was then transversely incised below the edge of the peritoneal fold. The upper edge of the bladder incision was temporarily sutured to the upper edge of the skin incision, and, for safety, a catheter introduced into the urethra and two fine sounds passed into the ureters. The borders of the fistula were freshened by two curved, funnel-shaped incisions. Silk sutures were so introduced that the knots were made to appear in the vagina, and then fine catgut sutures were passed through the freshened surfaces and knotted in the bladder. A T-shaped drainage-tube was inserted, and the bladder closed by a double row of catgut sutures (Lembert's method). Small iodoform tampons were placed in the prevesical space, and the skin wound closed, leaving openings at each corner for the drainage-tube and the tampons. In the second case a portion of the symphysis was cut away, leaving its fascial attachments, to give more room. The

right ureter was found to communicate with the fistula, and was separated from it for a distance of three-fourths of a centimetre, the fistula then freshened, and closed with catgut sutures. A fish-bone bougie was passed into the ureter, through the urethra, and the bladder wound closed, as in previous operation. The osteotomy wound was sutured with wire. Both cases made good recoveries. A case of congenital vesico-vaginal fistula was reported by Botsford, of Dresden, N. Y. ⁸²_{June 18} He successfully operated upon it by paring the edges of the opening and suturing with silk. Herzfeld ⁸¹_{Nov. 14} reported a vesico-vaginal fistula following craniotomy, after several days' labor. A tumor, the size of an egg and the color of a raspberry, projected from the vulva. On pushing it back, it was noticed that the entire vesico-vaginal septum was wanting, from the anterior vaginal *cul-de-sac* to the trigonum. The mouths of the ureters were easily discernible.

Recto-Vaginal.—Von Kliegl ⁸⁴_{Nov. 14, '91} recorded a case of recto-vaginal defect in a 12-year-old girl. The patient had been the subject of rape, and, as the immissio penis was difficult, the recto-vaginal septum had been divided with a pen-knife to the length of five centimetres. The plastic operation was done thirteen years later, when the edges of the wound were freshened and united. Montgomery, of Philadelphia, ²³⁴_{Dec., '91} reported a case of recto-vaginal fistula resulting from an abscess in the intervening walls, and kept up by stricture of the rectum. Dunning, of Indianapolis, ⁶¹_{Feb. 13} reports the case of a large recto-vaginal fistula, permitting the passage of three fingers, in a woman whose external genitals were the seat of syphilitic ulcerations. Under antisyphilitic treatment and bichloride douches, the fistula closed by granulation, in three months' treatment. A case of recto-vaginal fistula from stricture of the rectum is cited by Montgomery. ²⁰²_{Feb. 10} Routier ³_{June 29} has used Félizet's method of closing the fistula by perineal splitting, with section of the recto-perineal flap, without suture, without success. The fistula persisted, and, moreover, the divided sphincter had become insufficient. He then performed a perineorrhaphy with satisfactory results. Reynier ³_{June 29} considers colpoperineorrhaphy as the most simple treatment. Price, of Philadelphia, ²³_{May} reports a recto- and vesico-vaginal fistula, in the same patient, from neglected pessary.

Urethro-Vaginal.—Oker-Blom ⁶_{Jan. 30} met with a case in which the entire middle portion of the urethra, extending backward as far as

the bladder, had been lost in a first confinement. Of the anterior portion, only one centimetre remained. The sphincter was also injured. The tissues between the neck of the bladder and the symphysis had disappeared, their place being occupied by a cavity. The orifice of the vagina was narrow and extremely rigid, the mucous membrane being replaced by cicatricial tissue, which extended from side to side. Oker-Blom formed a new urethra by raising a flap from the right side of the vagina, the posterior edge of which was sutured to the opening into the bladder, and the anterior edge to the remains of the urethra, whilst the middle portion was united to the tissues on the left, below the symphysis. As no sphincter existed, the patient was provided with a plug of cork, which was used as a substitute, with entire satisfaction. A case of urethro-vaginal fistula, the result of injury during a stone operation, is reported by Turner.²²

Uretero-Vaginal.—Thiriar¹¹⁵_{Mar.16} reports a curious and very rare occurrence, namely, the extirpation of a normal kidney for ureteral fistula, which had resulted from an operation upon an enormous ovarian cyst adherent to the uterus and its adnexa. The right ureter was inclosed in the cyst-wall, and was removed to the extent of six centimetres. The removal of the kidney was done to relieve the inconvenience resulting from the fistula, and the patient made a good recovery. Geyl⁴⁰¹_{No.37} reports the case of a woman delivered by a high forceps operation, after a delayed delivery, in whom were a uretero-vaginal fistula on the left side, a uretero-uterine fistula on the right side, two deep cervical tears, and a complete rupture of the perineal septum. The uretero-vaginal fistula was first operated upon, an artificial vesico-vaginal fistula being established, the termination of which was situated close to the already existing ureteral fistula, by an incision prolonged as far as the latter. This incision was made upon a sound introduced into the bladder so that its point impinged upon a Pawlik catheter, which was passed for a distance of five or six centimetres into the ureter. A thin, S-shaped, curved catheter was next introduced, through the urethra and bladder, into the ureter, and two strips of mucous membrane were excised, the incision beginning at a point of the vesico-vaginal wound removed one-half centimetre from the terminal portion, situated in the proximity of the fistulous opening. The mucous strips surrounded the fistula in

the direction of the vesical wound, from one to one and one-half centimetres of intact vaginal mucous membrane intervening between them and the fistula. The urethral orifice having been thus forced into the bladder, sutures were applied. The exposed mucous surfaces were united by a line of sutures which, also, coaptated that part of the vesico-vaginal wound situated behind these surfaces. The sutures were removed ten days later, when the fistula had healed and the bladder had regained its full capacity. Geyl attempted to cure the uretero-uterine fistula, beginning by dilating the uterus in search of the fistula; failing to find it, he amputated the corresponding half of the cervix. These efforts proving useless, and the patient refusing to submit to extirpation of the kidney, nothing further was done.

Weil, of Teplitz, ⁸_{Apr. 21} reports a case of uretero-vaginal fistula, caused by the pressure of a pessary. Failing to close it, he temporarily relieved the patient by introducing a rubber tube, four millimetres thick and six centimetres long, guarded by a thread passed through its middle, into either end of the ruptured ureter, establishing the passage-way for the urine to the bladder. After a week he was forced to remove it on account of severe pain in the region of the corresponding kidney.

Vesico-Cervical.—Kleinwächter ⁵⁹⁵_{B. 23, H. 2} attempted, unsuccessfully, to close a vesico-cervical fistula through the bladder, as recommended by Trendelenburg. The upper edge of the fistula was formed by the remains of the anterior lip of the cervix. Attempts at closing the fistula by freshening the edges were fruitless. The patient was placed in Trendelenburg's position and the bladder opened above the pubes, but the fistula could not be closed on account of the firmly-contracted, hypertrophied condition of the bladder. He believes the indications for this operation to be: (1) where the vagina is very narrow; (2) where the uterus is so high up that it cannot be reached through the vagina; (3) when there are great defects in the vesico-vaginal wall. He recommends opening the bladder in the longitudinal axis of the body rather than the transverse, since in the former case there is not so much separation of the edges of the wound.

Vesico-Utero-Vaginal.—Ransom, of Dodge Centre, Minn., ¹⁰⁵_{July 16} had a vesico-utero-vaginal fistula occur after labor. In this case the entire cervix, with the exception of a piece of the posterior lip,

was destroyed. The fistula was closed by suturing the posterior lip of the cervix to the inferior border of the fistula. The patient menstruated through the bladder with no further discomfort than slight vesical irritation, for a few days during the menstrual period.

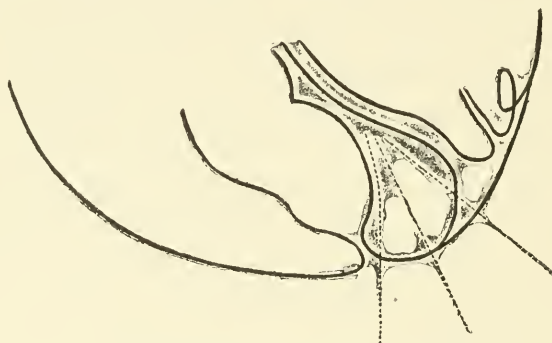
PERINEUM.

Lacerations.—Smith, of New York, ¹⁰⁰³_{May} makes a strong plea for the ocular examination of the perineum after delivery. He states that 30 per cent. of all primiparæ are lacerated, 15 per cent. unavoidably and 15 per cent. unnecessarily. Jewett, of Brooklyn, ¹⁵⁷_{Feb.} calls attention to the value of delay in the perineal stage of labor, especially in primiparæ. Langstaff, of Brooklyn, ¹⁵⁷_{Feb.} recommends the manual dilatation of the ostium vaginæ as soon as labor begins. His procedure consists in inserting four fingers into the vagina as far as the hand will allow, leaving the thumb outside; then, with the palm against the fourchette, pressing gradually downward till the hand reaches the coccyx. The fact that the columna rugorum posterior remains uninjured after injuries to the perineum, as was first pointed out by Freund, is agreed to by Küssner, of Berlin. ⁴_{May 2} He calls attention to the fact that an unfavorable condition is brought about by the contraction of the cicatrix, on account of the lateral position of the rupture. If the vagina be ruptured on one side only, the columna is drawn off unevenly; if on both sides, the heavy columna sinks forward and heals too far down on the perineum. He urges that the incision of the perineum during the birth of the head should be in the centre, and not on the side. The relation of the complexion to laceration of the perineum has been studied by Ross, of Detroit, ²³_{Jan.} She has observed that women possessing dark hair, red cheeks, red lips, and bright, clear skin are most liable to tear. Blondes with sallow skin, and a tendency toward a deposit of pigment, are least vulnerable. Red-haired women are included in the first category. Finke, of Cincinnati, ⁵³_{Mar. 26} and Johnstone, ⁵³_{Mar. 26} claim that it occurs with equal frequency in both blondes and brunettes, and is least frequent between 16 and 20 years of age.

Reynolds, of Boston, ¹_{Nov. 14, '91} regards the longitudinal median tear to be more frequent than the lateral, the typical form being the crescentic median tear, with many modifications. The rupture, he believes, is more likely to occur where the upper stronger layer

of the pelvic floor joins the weaker, the former being stretched, the latter relaxed. The upper layer being drawn like a hood over the advancing head, the rupture occurs, if it does not retract. The longitudinal tears he finds to occur when the labors are very rapid; the lateral tears when the labors are slow. The aim of the immediate operation in their repair is to draw the lower set of fibres upward into apposition with the upper layer. Barnham¹⁰⁴ July 23 calls attention to the fact that the tear of the levator ani muscle may be extensive, without any laceration of the mucous membrane, and, on the other hand, the mucous membrane may be extensively lacerated with very little laceration of the muscles.

Episiotomy.—The value of episiotomy is referred to by Langstaff, of Brooklyn,¹⁵⁷ Feb. and Küstner, of Dorpat.¹⁶⁹ July Langstaff



REPAIR OF PELVIC FLOOR.
(*Boston Medical and Surgical Journal.*)

uses a blunt-pointed tenotomy knife, making the cuts while the resisting ring is on the stretch during a pain, a full inch from the median line on each side. He incises to the length of an inch. Küstner makes the incision in the middle of the perineum.

Primary Operations.—Baker, of Boston,⁹⁹ May 26 believes that the two elements of success in perineorrhaphy are: 1. Absolute cleanliness of the parts. 2. The most perfect approximation of the parts. He attaches great importance to the use of sutures, which may be tightened when the swelling subsides. He regards the method of operating with the finger in the rectum as open to criticism. It has been the experience of Reynolds, of Boston,⁹⁹ May 26 that a wide, sweeping suture, bringing all the muscular and fascial tissue near the tear together *en masse*, gives a better result than exact apposition. He uses the Hanks-Peaslee needle. The three

stitches are passed a third of an inch from the edge of the tear, the first about opposite the antero-posterior edge of the anus; the second, half-way between the anus and the fourchette; the third, about opposite or anterior to the fourchette. (See cut.)

Ricketts, of Cincinnati,⁵³_{Mar. 26} believes that lacerations should not be repaired when complicated with trauma of the pelvic floor posterior to the laceration, and with prospects of a post-puerperal peritonitis, which may be the result of a ruptured pus-tube or leaky ovarian or intra-ligamentous cyst. He thinks that, in simple laceration, the risks from the bathing of the recently-stitched field of operation in lochia is not so great as in the preceding condition, yet the difficulty in the after-dealing with the lochia, and the added risk following the needle-punctures, is enough to justify us in choosing a secondary repair of the perineum. Gillespie, of Covington, Tenn.,⁷⁴_{June} prefers to wait until the third day after delivery, when the granulations have well sprung up, before uniting the tissues. He uses the common, straight sewing-needle, recommended by Emmet. Ruth A. French, of Petatuma, Cal.,⁷⁶⁰_{Aug. 22} manages recent lacerations by placing the patient on her face, and bringing the lacerated parts together with serre-fines. On the third day the bowels are moved and the serre-fines removed. The patient lies a few days longer on her face, to protect the parts from contact with the discharge. Abbott, of Minneapolis,¹⁰⁵_{July 15} ascertains what muscle or muscles of the perineum are torn, by having the patient contract and relax, alternately, the sphincter ani, while lying in the dorsal position, with the perineum exposed. He uses hardened catgut sutures, passing them transversely across the tear, beginning at the upper end of the wound, with silver-wire sutures in front.

Secondary Operations.—Cerne,²⁰³_{July 15} in the treatment of incomplete tear of the perineum, adopts the method of operating suggested by Lawson Tait, on account of the rapidity with which the operation may be performed, and the fact that the immediate result is perfect. As to the remote results, he is not able to speak definitely. Monod, of Bordeaux,⁷⁸⁰_{Apr.} emphasizes the importance of the white cicatricial line which extends transversely to the antero-posterior axis of the destroyed perineum,—that is, to the axis of the rupture. This line, which is constant, should correspond to the line of reunion of the primitive tear, and

indicates the direction of the incision which it is necessary to make in order to re-establish the normal anatomical relations of the part. A deep incision here will reproduce the old tear, and all that is then necessary is to unite the edges by sutures, and the perineal body, destroyed by the tear, will be restored.

Abbott, of Minneapolis, ¹⁰⁵_{July 15} believes that, in 80 per cent. of the moderate lacerations, it will be found that the right transversus perinei, with a few fibres of the sphincter vaginae, alone are affected. To repair this injury, he cuts down opposite the tuber ischii, deepening the incision to the ends of the torn muscle. After excising the scar, if any should exist, he sutures from side to side in the vagina, with silver wire. He uses only silver wire, except where catgut is required for buried sutures, and allows the patient to get out of bed to relieve nature. Baldy, of Philadelphia, ²³_{Mar.} believes that the Emmet operation is above all others, except perhaps the Goodell, where the sphincter ani is not torn through. When this has occurred, he believes the flap-splitting operation will answer perfectly well, and is easier of performance. He classifies the lacerations of the perineum into two groups, applying the Tait operation to that group in which the tear is superficial, not involving to any extent the pelvic floor. Where the laceration has affected the muscles and fasciae of the pelvic floor, as is indicated by cystocele or rectocele, or both, he believes the Emmet operation to be pre-eminently superior.

McColl, of Lapeer, Michigan, ¹⁰⁰³_{June} considers the flap-splitting operation best adapted to simple and complete lacerations. He combines it with anterior colporrhaphy and double lateral elytrorrhaphy, as the case may require. He thinks the failure to carry the splitting high enough into the septum, and deep enough into each labium, to be the cause of the failures resulting in merely skin perineums. Baer, of Philadelphia, ²³_{Mar.} regards the Emmet method of denudation as correct, but prefers a simpler mode of passing the stitches. He passes a single row, entering the needle deeply on the outer side of the denuded sulcus and emerging at the bottom of the sulcus, enters on the rectal side and brings the needle out at the top of the opposite side of the sulcus. He then picks up the crest of the rectocele at the upper border of the denudation, and passes down the inner side of the left sulcus and up on the outer side, making the entire sweep with one suture. He

repeats the same process once or twice. For the cystocele, which frequently accompanies these cases, he favors a circular denudation and purse-string suture. He sometimes applies the same procedure to the crest of the rectocele when this is large, before making the Emmet denudation below. He favors the Tait operation where there is simply a gaping of the vaginal orifice. Jackson, of Houston, Tex., ¹¹⁰_{Sept.} makes a U-shaped incision with Tait's scissors, and, after dissecting the flap up the recto-vaginal septum, encircles the denuded surface with a silver-wire suture, which, on being tightened, draws the freshened tissue together.

Howard A. Kelly, of Baltimore, ¹⁰¹_{July 23} divides injuries to the vaginal outlet into three sorts: First, involving the external anterior part of the perineum; second, complete tear; third, internal tear. The fact that prolapsus is so rarely associated with complete tear shows, he reasons, that the perineal body is not the supporting structure of the pelvic organs. In the internal tear the rupture in the sulci extends down into the tissues, separating the levator ani from its rectal attachments; the anus then drops backward and the vaginal walls roll out. For the relief of this relaxation, he thinks there is no advantage in an operation that does not sacrifice any of the tissue. His mode of procedure is to denude both the sulci and across the lower anterior face of the posterior vaginal wall. Two triangular areas of denudation point up in both sulci. The tissues on either side of these are loosely approximated by means of a single silk-worm-gut suture to each sulcus. This is the tension suture. Above, the approximation is made by a number of catgut sutures. The lower part of the denudation is brought together by silk-worm-gut sutures passed transversely. McMordie, of Belfast, ²²_{Dec. 23, '91} reports a successful case of restoration of the perineum by paring the free edges of the recto-vaginal septum and raising two triangular flaps of mucous membrane, the base of each being the median line of the posterior vaginal wall.

Reed, of Cincinnati, ⁵³_{Jan. 2} calls attention to the necessity of carefully coaptating the margins of the flaps, to prevent the gravitation of secretions from the vagina into the wound. He effects this by passing a reef-stitch through the entire margins, from one side to the other. Johnstone, of Cincinnati, ⁵³_{Jan. 2} avoids the path of non-union along the line of suturing in the flap-splitting operation, by using catgut for all deep sutures, cutting it short to the knots,

and then covering it over by the integumentary flaps, brought edge to edge and held by fine-silk sutures. In order to prevent the fouling of the wound with urine, after repair of the perineum, Nevins, of Hanley, England, ⁶_{Dec. 5, '91} recommends the careful administration of an antiseptic douche, twice or three times a day, directing the patient to micturate while the douche is being given.

Weil ⁸⁸_{Mar. 16} successfully repaired a lacerated perineum during the early months of pregnancy. Cases of restoration of the perineum, with good results, are reported by Dunning, of Indianapolis ⁶¹_{Feb. 13}; Haggard, of Nashville ⁸⁶_{Apr.}; Baldy, of Philadelphia ¹⁰⁶_{Aug.}; Mordecai Price, of Philadelphia ¹⁰⁶_{Aug.}; Parvin, of Philadelphia ²³¹_{Apr.}; Fernandes de Ybarra, of New York, ⁴⁵¹_{Sept.} and Schauta. ⁸_{June 23} Michael, of Baltimore, ¹⁰⁴_{July 23} cautions against making the new vaginal outlet too narrow.

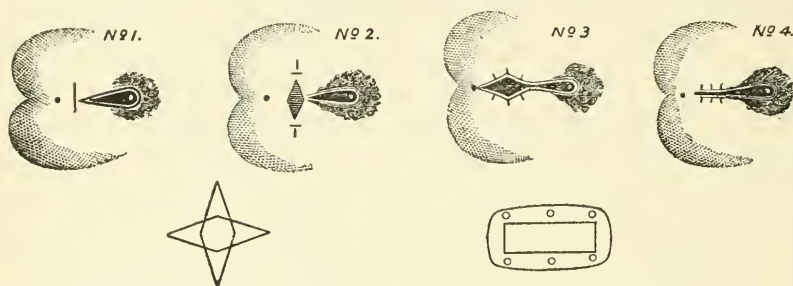


Diagram of Reversed Lozenge.

Splint for Sutures.

PERINEORRHAPHY.
(Kansas City Medical Index.)

New Operations.—Duke, of Dublin, ⁷²_{Dec., '91} describes a new operation, designed for the restoration of the lacerated perineum, which has proved satisfactory in its results. He introduces a long, straight, double-edged bistoury into the tissues in front of the anus, at right angles to the vulva, and, guided by a finger in the rectum, penetrates the septum for two and a half inches upward. The incision is enlarged laterally to two inches, as the knife is being withdrawn. The points of incision are then pressed together, forming a lozenge-shaped wound, the two surfaces of which are brought into apposition by deep sutures of strong silver wire. The ends of the sutures he passes through a perforated leaden plate, over which they are twisted, the plate acting as a splint to the wound.

Longyear, of Detroit, ¹⁰⁰³_{May} makes the incisions and denudation as in the Tait operation. When this is completed, he inserts a tenaculum into the middle of the edge of each flap; the lower one

he everts and draws down over the anus; the upper he everts and draws up over the vulva, forming a large, irregularly quadrilateral wound. He unites the surfaces with silk-worm gut, inserting the

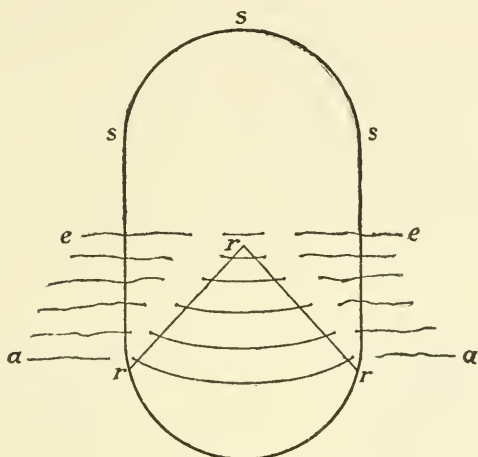


FIG. 1.—PERINEOPLASTY.

r, r, r, silk sutures to form anterior rectal wall. The exterior and interior stitches prevent injury to the rectum. *e, e*, first suture; *a, a*, last rectal, first perineal suture; *s, s, s*, vaginal flaps.
(*Deutsche medicinische Wochenschrift.*)

needle just inside the edges of the skin, finishing the operation by a continuous suture of horse-hair. He removes his stitches on the tenth day.

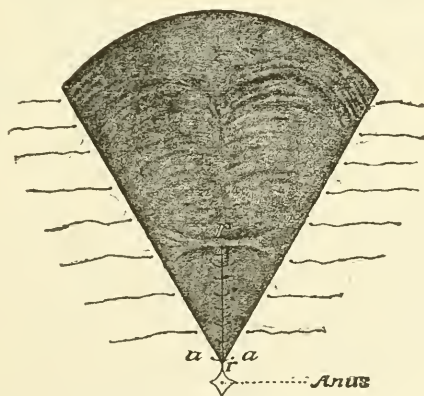


FIG. 2.—PERINEOPLASTY.

Perineal suture. The anus is formed anew. *r, r*, anterior rectal wall, in base of wound; *a, a*, last rectal, first perineal suture.
(*Deutsche medicinische Wochenschrift.*)

Czempin, of Berlin, ⁶⁹May 19 suggests a modification of the flap-splitting operation in complete lacerations, by which the H-shaped incisions are made as in Sanger's method, when, instead of drawing

the rectal flap down over the anus, he draws it up with a sharp hook inserted in its middle, making the figure of an inverted V: Λ with the apex in the lumen of the vagina. He inserts the first suture a little above the angle of the Λ (*c-c*, Fig. 1) as a tension suture for those following. He then unites the surfaces with interrupted fine-silk suture, tying as he goes. Where there is much gaping of the perineal wound, he places over this row two or three catgut sutures. The last rectal suture (*a-a*) is inserted in the skin margin and forms the first suture at the lower end of the new perineum. The denuded surface is then united with two silk and three to five catgut sutures. (See cuts, page 29.)

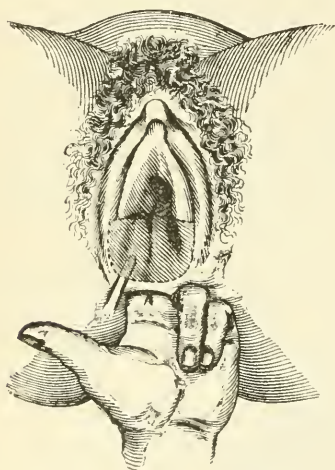


FIG. 1.

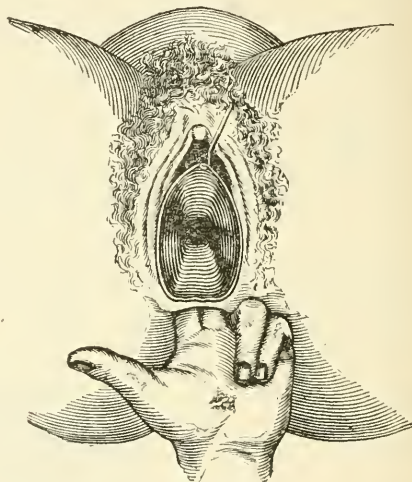


FIG. 2.

COLPOPERINEORRHAPHY.

(*Journal of American Medical Association.*)

Jenks, of Detroit, ⁶¹_{July 16} believes that a dissection of the flap, extending as high within the recto-vaginal septum as there are signs of redundancy of the posterior vaginal wall, is essential to the accomplishment of the best permanent results. Having marked the termination of the anterior margin of the flap by nicking each labium, he inserts his sharp-pointed scissors near the junction of the integument and mucous membrane in the median line, guided by two fingers in the rectum, and dissects a flap up the septum as far as redundancy of the walls can be observed, making the dissection in its entirety without withdrawing the scissors. He prefers silver-wire suture, but uses silk-worm gut in sensitive

patients. The placing of the first two stitches is the most important part of his operation. In introducing the first stitch, he turns the point of a Peaslee needle toward the buttock of the corresponding side, pushing it deeper into the tissues of the anterior ischio-rectal space, then upward, and finally inward along the recto-vaginal wall until it has been carried just above the highest point of dissection in the centre. Here he brings it out and carries the suture through. The needle is then introduced, in a similar manner, on the opposite side and the upper end of the suture threaded and carried into place. For the second stitch, the needle is started at about one-third of an inch above the first and passed similarly to the first, except that not so much lateral tissue is taken up. It crosses the first suture and comes out on the vaginal mucous membrane about one-half inch above the central point of dissection. The third stitch is passed to the junction of the flap and

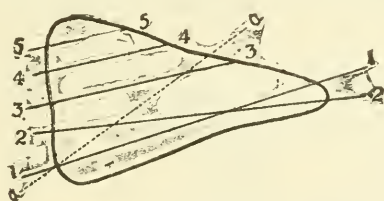


FIG. 3.
COLPOPERINEORRHAPHY.

(*Journal of American Medical Association.*)



FIG. 4.

septum, where it enters the flap at its upper fourth, burrows across to the opposite side and down the denuded surface to the outside. The fourth and fifth sutures are buried under the denuded surface as far up as the junction of septum and flap; pass under flap without burrowing in it to the opposite side. A straight, thin needle is then passed under the portion of denuded surface contiguous to the edge of the flaps and through this to the opposite side. When there is any liability to hæmorrhage, a silk suture is passed outside the adjusted sutures and over the flap to be removed in twenty-four hours (*a-a*, Fig. 3).

Zinke, of Cincinnati,⁵³_{Jan. 2} has had a recurrence of laceration during labor in nearly all his cases operated upon, in which he removed the flap. He describes a new operation upon the perineum, which is a modification of that of Hégar. Making a

U-shaped incision, he dissects deeply enough to get down to muscular tissue, procuring, as Hégar does, a triangular surface, pointing

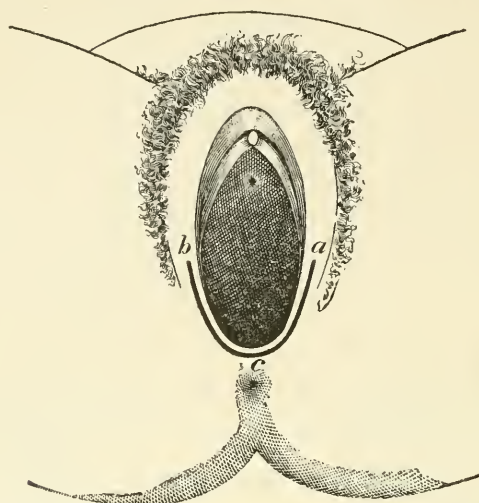


FIG. 1.—REPAIR OF THE PERINEUM. SHOWS LINE AND EXTENT OF INCISION EXTERNALLY.

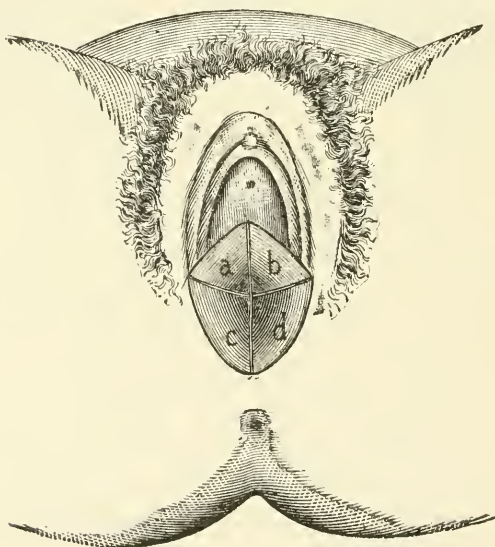
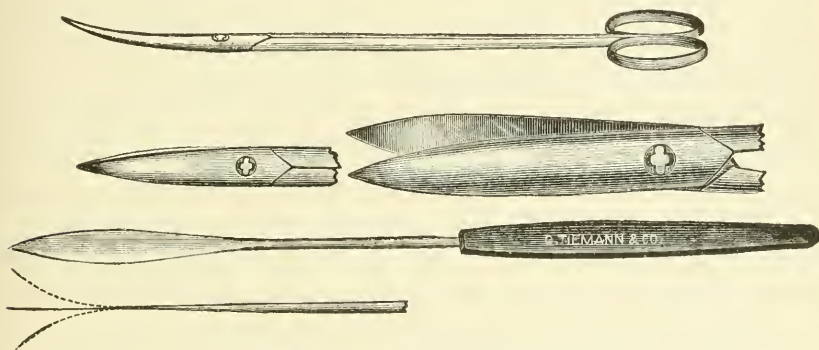


FIG. 2.—REPAIR OF THE PERINEUM. SHOWS THE CAVITY OF THE WOUND, FLAP BEING DRAWN FORWARD BY TENACULUM.
(Cincinnati Lancet-Clinic.)

with its apex to the posterior *cul-de-sac* and having its base at the fourchette. The flap is thick and firm and is not removed. It is seized at the centre of its base with a sharp hook, and then drawn

forward, forming a tetrahedronal cavity, the apices of which unite at the vaginal extremity, with the bases toward the vulva. Two of the triangles (*a* and *b*) are formed by the flap, and the other two (*c* and *d*) by the surfaces, which will form the perineal body. The surfaces are now brought into apposition with a continuous catgut suture, so that *a* lies on *b* and *c* on *d*.

New Instruments.—Jenks, of Detroit, ⁶¹July 16 has devised a flexible double-edged knife and slightly-curved overlapping scissors, with both inner and outer edges equally sharp, for submucous dissections in his flap-splitting operation.



COLPOPERINEORRHAPHY KNIFE AND SCISSORS.
(*Journal American Medical Association.*)

Rectocele.—Ozenne ¹⁰⁰May 19 regards vaginal rectocele as much less frequent than is usually believed, the rectum usually remaining *in situ*, while the posterior vaginal wall is prolapsed. As to the influence of age upon the development of the affection, he believes that it is more common in the middle period of life, from the thirty-fifth to the forty-fifth year. Ozenne prefers the procedure of colpoperineoplasty by *glissement*, devised by Doléris, for the reason that it attains the double end of re-inforcing the pelvic floor and of drawing the vaginal wall against the rectum, thus overcoming the tendency to a vulvar hernia of that organ. This operation is done as follows:—

The vaginal wall is carefully separated from the rectum and a sufficient quantity removed. Three *fil-de-Florence* sutures are then inserted with a curved needle, the first suture being the most central. The needle penetrates laterally to the left of the anus, passes deeply into the tissues, and catches the vaginal flap

almost at the extreme point of the dissection; penetrating again into the vagina, it retraverses the flap to the right and emerges to the right of the anus. This first suture has for its object the dragging of the vaginal wall toward the vulvar commissure, and, at the same time, bringing together the opposite borders of the cutaneous lips of the incision. The other two sutures are placed in a similar manner, a little to the outside of this one. The surplus of the vaginal flap is resected and the two lips reunited. An antiseptic dressing is then applied.

VAGINA.

The vaginae of infants have been studied bacteriologically by Strogonoff,⁵⁸⁶_{No.20} who made thirty-three examinations in children varying from 5 hours to 8 days old. He finds that the vaginae of infants, shortly after birth, are, as a rule, absolutely free from microbes, but after the first bathing micro-organisms are found. The infantile vagina seemed to be a favorable medium for the proliferation of bacteria, but he noted only non-pathogenic microbes, which he believes penetrate partly through the agency of the water used for the bath, and partly through the customary anointing of the child's genital with some fatty substance. They may also be introduced during the performance of artificial respiration. Early penetration is favored by breech presentation.

Discharge of Air from Vagina.—Satschawa²¹_{May 23} reports the case of a woman, who, for several years, had been troubled by the involuntary discharge of gas from the vagina, accompanied by noise. This occurred when she lay in bed or sat in a swing. The greater and lesser lips of the vulva were incompletely developed and rigid, and the anterior vaginal wall prolapsed. Air could unhindered find entrance to the vagina, and remain there by contraction of the constrictor cummi, to be discharged as soon as the vaginal walls were drawn together. By energetic treatment of the prolapse, the condition was relieved.

Atresia.—Martin, of Michigan,¹⁰⁰²_{May} reports a case of congenital absence of the vagina, upon which he did a second operation for reclosure. The uterus was well developed. Schwartz, of Paris,³_{Apr.27} reports a case of total absence of the vagina and hymen, associated with absence of the uterus and double inguinal hernia containing intestine and omentum, both reducible, together with a large irre-

ducible mass. Operation showed that the latter were the aberrant ducts of Müller. An artificial vagina was formed by dissection of the recto-vaginal partition, and was lined by four flaps taken from the vestibule, the labia majora and minora, and suturing from the base of the dissection. A radical operation was performed later, first upon the right and then upon the left hernia, cure following by first intention.

A case of congenital atresia is reported by Kennedy, of Springfield, Mass., ¹¹²_{July} observed in a girl 17 years old. The bodily development was good. The labia majora were well formed and normal in size, but the labia minora were imperfectly developed, and between them the vulvar orifice was closed by a dense corrugated membrane. On perforation, about 2 gallons (8 litres) of retained menstrual fluid were removed. Brown, of San Francisco, ⁷⁷_{June} reports a case of almost complete atresia of the vagina in a woman, three and a half months pregnant, who complained of a continuous, slight, bloody discharge. A pinhole opening was found in the roof of the vagina, which, on being crucially incised, revealed the cervix. Fahmy ²³⁵_{Dec., '91} reports a case of congenital atresia of vagina and cervix, with retained menstrual fluid. Two cases of atresia following delivery with forceps are described by Petit, of Paris, ¹⁵²_{Feb. 12} and Swiecicki. ⁵⁶⁹_{'91} In the latter's case the scar-tissue was incised and some intestinal mucous membrane from a rabbit was transplanted. The attempt was unsuccessful, however, and he was forced to re-operate, using stanniol paper (tin-foil) with good results.

Kreth ⁶⁹_{Sept. 8} reports a case of tuberculosis of the vagina, with resulting atresia and extension of the tuberculosis to the uterus and tubes. Parvin, of Philadelphia, ⁹_{July 16} reports an interesting case of atresia ani-vaginalis. The patient was 20 years old, and had never had an evacuation from the bowel without a previous enema. Upon local examination, the genital fissure was found to be abnormally long; the external genitals were apparently normal, except for a narrow band, extending from one labium majus to the other, about an inch and a half from the clitoris. There was no external opening of the anus. Within the posterior commissure, and nearly an inch above, there was an opening in the posterior wall of the vagina, in what appeared to be a capacious *cul-de-sac*. This opening was guarded by a triangular flap, the attached portion of which was broad, but the free extremity narrow and pointed.

Upon introducing the finger into the orifice, a contracting sphincter could be felt. A probe passed into the opening, penetrated above some eight inches, apparently coming in contact with the invaginated sigmoid flexure. Directed downward and pressed firmly, its bulk could be felt through the tissues externally. Parvin corrected the deformity by making a transverse and two oblique incisions, similar to those of Tait for lacerated perineum. The transverse incision was carried up posteriorly to the inferior portion of the rectum and then around the vaginal opening. The anus was drawn down to the middle of the transverse cut and the tissues united by catgut sutures.

Aphthous Disease of the Vagina.—A case of colpit^{is} aphthosa is reported by Neumann, of Vienna, ⁸_{Feb. 25} occurring in a woman 7 months pregnant. The edges of the tongue and the mucous membrane over the soft palate and uvula were covered by numerous disseminated aphthous efflorescences. The nymphæ were large and projected beyond the labia majora. On their inner surface were several patches varying from one and one-half to three centimetres in diameter, uneven, yellowish white, and depressed. At some points were small, disseminated, yellowish exudates. In the vaginal mucous membrane were similar patches, and two patches of yellowish-white membranes one and one-half centimetres in diameter, with swelled, reddened margins. Along with this was a multiform erythema of the arms, hands, and body. Neumann thinks it probable that the aphthous condition of the mucous membrane and skin eruption were expressions of the same process, as the phenomena coincided in a remarkable manner.

Vaginitis.—A case of vaginitis, characterized by the studding of the mucous membrane with milky-white vesicles, was reported by Wright, of Greytown, Natal, ⁶_{July 9}. The vesicles varied in size from that of a hempseed to a small pea, and were about a third of an inch apart. On rupture, they exuded a watery, opaque fluid, leaving small pits in the mucous membrane. They were most abundant in the upper two-thirds of the vagina, the cervix being free. The woman's husband developed the same eruption upon his penis a few days after intercourse with her. The disease rapidly disappeared under the local use of borax and glycerin. Chanutin, of Russia, ⁴¹_{Sept. 8} reports a case of phlegmonous paravaginitis occurring in a woman, 35 years old, with accompanying symp-

toms suggestive of acute nephritis. On admission to the Obuchow Hospital, a slough 10 centimetres long and 1 centimetre thick, lying free in the vagina, was removed. A large ulcer was found on the posterior wall, extending to the right arch. The ulcer healed under local treatment, leaving a cicatrix in the vagina. A curious case of adhesive vaginitis is described by Swiecicki,⁷⁸³ in a young woman, aged 19 years, giving no history of genital disease, and who complained of missed catamenia. The vaginal walls were found to be glued together with soft adhesions, which were easily broken up, allowing the catamenia to appear. Two months later she again missed a period, and the upper third of the vagina was again found to be filled with pseudomembranes, which passed from wall to wall in various directions, rendering the cervix uteri inaccessible to the examining finger. The adhesions were broken up without pain or hæmorrhage.

While, earlier, the vagina was accepted as the chief seat of gonorrhœal infection, since the microscopic examination of the secretions for gonococci has become frequent, the occurrence of true gonorrhœal vaginitis in adult women has been denied. Welander, of Stockholm,⁴⁵ has observed some cases where young wives were infected by their first coitus. In these cases there was an active vaginitis with the acutest inflammatory symptoms, which completely differed clinically from the more chronic inflammation of the vagina in older women, and especially in prostitutes. In the pure purulent secretion the saprophytic vaginal bacteria had almost entirely disappeared and multitudes of gonococci were present. In two of the cases, after the acute symptoms were passed, the cervix remained free from gonococci. Welander therefore considers that, in such cases, a gonorrhœal vaginitis must be certainly recognized. When the vagina is subjected to very frequent sexual intercourse, from the manifold trauma the mucous membrane becomes more skin-like in character and unadapted to gonorrhœal infection. He believes that he has seen a few cases of gonorrhœal vaginitis in prostitutes.

Welander¹⁵⁴ believes that there may be a gonorrhœal inflammation of the vagina in chaste virgins. He cites a case where a husband contracted gonorrhœa from his wife in their first coitus. The wife was found to be suffering from vulvitis, and had an intact hymen. The examination of some secretion from the neighbor-

hood of the hymen revealed the gonococcus. Eloy²⁹⁰ recommends, in the treatment of acute vaginitis during the subsiding period, the use of daily injections of solutions of sulphate of iron (1 drachm to 1 pint—3.75 to 30 grammes—distilled water) or of chloral hydrate (4½ drachms to 1 ounce—18 to 30 grammes), the vagina being tamponed in the meantime with glycerole of tannin. Every second day the mucous membrane is to be touched with a solution of nitrate of silver, 16 grains (1.04 grammes) to the ounce (30 grammes). In the beginning of the attack he uses simply hot emollient injections, containing extract of coca-leaves and boracic acid. Godfrey, of Camden, N. J.,¹⁹⁹ Dec., '91 favors the hot douche, rendered antiseptic with bichloride of mercury (1 to 3000), or with permanganate of potash or borax, followed by the introduction of a dry medicated tampon, preferably dusted with bismuth, aristol, or iodoform. Sunar¹⁷ Feb., '29 recommends the use of beta-naphthol for the purpose of rendering the vagina antiseptic. He uses the following solution:—

R Beta-naphthol, 5iv (16 grammes).
 Alcoholis, 5xxx (120 grammes).—M.

A teaspoonful is added to a quart (litre) of water, which has previously been boiled and filtered, and used as a vaginal injection, either hot or cold, as the case may require.

Vulvo-Vaginitis.—Comby¹¹⁸ Jan has seen one hundred and fifty cases of vulvitis and vulvo-vaginitis, in girls varying in age from a few months to 13 years of age. By far the most frequent cause is contagion,—not produced so frequently, as is usually stated, by attempted coitus, but by the child sleeping with a person suffering from gonorrhœa, or by using the same articles of toilet. The writer states that he has known cases to occur from the child being bathed in the water of a bath previously used by a person having gonorrhœa. Mechanical irritation, such as that caused by masturbation and oxaluria, is rarely the cause; while one of the eruptive fevers, typhoid, eczema, or impetigo, may originate the trouble. Chaen-Brach⁸⁴ No. 6 has made a study of twenty-one cases of leucorrhœa, occurring in children of from 2 to 10 years of age. In the purulent secretion, in every instance, were found the intracellular agglomerations of the typical gonococcus, as shown by Gram's and Weigert's methods of coloring. He agrees with Comby in the source of infection, viz., from sharing the bed or

apartments of some one afflicted with gonorrhœa. The subjective symptoms are slight, but the duration is long, covering several months. The blennorrhagia is principally seated in the urethra, and not in the vagina or vulva, as the name "vulvo-vaginitis" would indicate.

Chaen-Brach has not observed any grave sequelæ, such as the propagation of the disease to the uterus, tubes, and peritoneum, and he attributes the relative rarity of these accidents in little girls to the obstacle encountered in the complete occlusion of the vulva at that age. The superficial localization of the gonococci in the genitalia contributes to a favorable prognosis. In these children a cure may be obtained, at the latest in some months; whilst, after puberty, it is not rare to see the disease continue indefinitely. Prophylactic measures consist in avoidance of contact with those suffering from gonorrhœa, and, in institutions, thorough cleanliness in regard to urinals, towels, etc. There is both an acute and chronic variety; the former yielding readily to treatment, the latter requiring vigorous measures. The treatment consists in rest in bed, strict cleanliness, washing of the parts two or three times daily with a bichloride solution of the strength of 1 to 2000, or of boracic-acid solution 1 to 25, with the after-application of powdered salol. Sulphur baths are to be used three or four times weekly. In the case of vaginitis, antiseptic crayons, $\frac{1}{8}$ inch in diameter, consisting of cocoa-butter, 15 grains (1 gramme), and salol, $11\frac{1}{2}$ grains (0.097 gramme), are to be introduced into the opening in the hymen every two or three days. Internally, oil of sandal-wood, in doses of three to five drops daily, is well supported. In very young children, to prevent contagion of the eyes, it is necessary to imprison the arms. Lop¹⁰⁰_{Apr.7} has encountered a mono-articular arthritis, consecutive to a gonorrhœal vulvitis, in a little girl of 2 years. The right radio-carpal joint was the one affected, the inflammatory process beginning on the ninth day. Articular complications of vulvitis are extremely rare; hence, this case is of especial interest.

A number of cases of vulvo-vaginitis in children have been collected by Williams, of Johns Hopkins Hospital.¹⁰⁴_{June 11} He believes that most of the cases are infectious, and, in all probability, of gonorrhœal origin. The most frequent mode of infection is indirectly from the mother, or some other member of the family,

by means of the general use of the same toilet articles, or by the children playing with each other's genitals. Williams insists upon the most scrupulous cleanliness in the treatment of his cases, to prevent re-infection. The treatment comprises the use of iodoform suppositories and the application of nitrate-of-silver solution, 30 grains to 1 ounce (2 to 30 grammes). The silver nitrate is best applied to the vagina twice a week, on a tuft of cotton twisted upon the end of a probe. The genitals should be frequently cleansed with Castile soap and warm water, and then dusted with boracic acid. Epstein⁴⁵_{p.3, '91}; ³³⁶_{July 2} believes that gonorrhœal infection of the genitals in newborn babes takes place, most probably, during birth, in a similar manner to ophthalmic blennorrhœa. He is inclined to believe that many cases of early infection are overlooked, and that at least a part of the gonorrhœal affections occurring in later childhood are to be referred to exacerbations of the gonorrhœal trouble acquired during birth. He recommends, as a prophylactic, baths with the addition of permanganate of potash, with special cleansing of the vulva; where gonorrhœa exists in the mother, the dropping of a few drops of 2-per-cent. nitrate-of-silver solution upon the vulva. Where there is conjunctivitis, care should be taken to prevent the conveyance of the disease to the vulva. A case of vulvo-vaginitis, in a girl aged 12 years, caused by thread-worms in the vagina, is described by Spitzer.⁸⁴_{No.1}

Vaginismus.—Krog²⁰²_{July 25} reports a case of vaginismus in a newly-married woman, to whom coitus, soon after marriage, had become impossible. Inspection of the vulva revealed a hymen which had been lacerated into four distinct parts, each of which was more or less triangular in form. On the apices of these were small hypertrophic nodules, "resembling corns on the feet." Excision of the hymen relieved the trouble. Olshausen, of Berlin,⁴¹_{Sept. 8} recommends, in the treatment of vaginismus, excision of the hymen, the use of a 5- to 10-per-cent. cocaine ointment, on cotton tampons, and dilatation of the vagina with conical hard-rubber dilators. Dilatation is also recommended by Godfrey, of Camden, N. J.,⁷⁶⁰_{Nov. 14, '91} who performs it with the thumbs, under cocaine, and repeats the treatment daily, following with an antiseptic douche and a glycerin tampon.

Abscess.—Cases of abscess in the vaginal wall are reported by Smith, of Detroit,¹⁹_{Jan. 16} Hadra,⁸⁵_{Feb.} and Wilson.⁸⁵_{Feb.}

Polypoid Hypertrophy.—A case of polypoid hypertrophy of the vagina is reported by Rissmann.³¹_{June 18} The condition was detected during labor, when a pale-red, ribbon-like structure was found pressed between the head and the vagina, projecting from the vulva. After delivery, it was found to be attached to the anterior vaginal wall, immediately above the meatus, and measured three inches in length. Upon the posterior vaginal wall were two similar growths.

Fibromata.—Olenine, of Russia,¹³²_{Feb.} mentions a case of multiple fibromata, in a woman 32 years old. A large lobulated tumor, situated immediately behind the entrance to the vagina, filled the entire cavity, and was adherent, by a large pedicle, to the posterior wall. After its removal, twenty-nine similar tumors, varying from a hazel-nut to a pigeon's egg in size, were found in the posterior and lateral walls, and enucleated. Fibrous tumors of the vagina are also reported by Hasenbalg⁵⁹⁵_{B.23,H.1} and Hofmokl.¹¹³_{No.32,'91} In Hofmokl's case the tumor was the size of a child's head, and grew by a short pedicle.

Cancer.—Caddy, of London,⁶_{Nov.21,'91} performed supra-pubic cystotomy for retention of urine, resulting from a cancer of the vagina, which had invaded the anterior wall of the rectum behind and occluded the urethra in front. He believes the operation to be indicated when difficulty of micturition begins, in involvement of the urethra from cancerous growth. Mackenrodt³¹_{No.27} removed a cancerous growth of the vagina, which had involved the posterior wall, reaching as far as the insertion of the vagina to the cervix. After removal, nothing was left of the posterior vaginal wall except a piece, three-fourths of an inch broad, next to the perineum. The uninvolved uterus was also removed, and the anterior vaginal wall fixed to the remains of the posterior wall. Cases of primary cancer of the vagina are reported by Steele,⁶_{Jan.9} Barker, of Boston,⁹⁹_{Nov.26,'91} Meyer,⁵⁹⁵_{B.22,H.1} and Haven, of Boston.⁹⁹_{Nov.26,'91} Meyer's case was caused by the irritation from a pessary. A remarkable case of the disappearance of a vaginal sore resembling carcinoma, under daily treatment with alcohol lotions, is reported by Bársony, of Vienna.⁶⁵⁰_{No.15} The alcohol washings were instituted for cleanliness until operation. In another case, described by the same writer, and diagnosed as carcinoma portio vaginalis, the growth was greatly diminished in size by like treatment.

Forterre ¹²⁶_{July 15} advocates the following procedure, in extirpation of primitive cancer of the recto-vaginal wall, to escape the formation of a recto-vaginal fistula: A semilunar flap, comprising the entire depth of the perineum, is dissected up, the convex border reaching to the anus and the concave embracing the fourchette. This flap is composed of skin and the subcutaneous connective tissue. The fourchette remains intact, but the vulvar mucosa is divided in front of the myrtiform caruncles in such a manner that the flap is entirely free and movable in its middle portion, whilst at its extremities it is continuous with the labia majora. Then, with the bistoury, all the wall, from the neighborhood of the posterior *cul-de-sac* up to, and including, the anterior circumference of the anal sphincter, is removed. The perineal flap is then drawn backward to the junction of the posterior *cul-de-sac* of the vagina, and sutured with catgut. The freshened surface of the flap is now turned toward the vagina, and the cutaneous surface toward the rectum. To give to the widely-gaping anus dimensions nearly normal, all that is necessary is to draw down the anterior wall of of the rectum, and to fix it to the perineal wound by some *fil-de-Florence* sutures.

Sarcoma.—Worcester, of Boston, ⁹⁹_{Nov. 26, '91} noticed a small, bluish mass on the posterior vaginal wall of a patient whom he was treating for anteversion. It grew irregularly, and quadrupled in size in the course of a year. Histological study of a snipped portion revealed its sarcomatous character. Two cases of similar growth are reported by Oliver. ²²_{May 11}

Cysts.—Chalot ⁴⁸_{July} groups cystic growths of the vagina as follows: 1. *Glandular cysts*, always superficial, not very voluminous; first studied by Huguier, and the existence of which has been demonstrated by the microscopical observation of von Preuschen, Heitzmann, and Hückel. The vaginal mucosa is at times supplied with true glands, whose excretory canals become obliterated; the glands then becoming retention cysts. 2. *Lymphatic cysts*, sub-mucous, lined on the interior by endothelium, and which arise from connective tissue, lacunæ, or from dilated lymphatic vessels (Winckel, Klebs). 3. *Hygromas*, developed in the serous sacs during coitus or from any traumatism whatever (Verneuil, Eustache, Tillaux). 4. *Serous collections* formed by traumatic separation of the parts at the moment of accouchement, for example (Morel-

Lavallée, Ladret de la Charrière, Thorn). 5. *Cysts consecutive to hæmatomata*. 6. *Wolffian cysts*, that is to say, cysts developed in the inferior vestiges of the canal of Wolff. 7. *Müllerian cysts*, or collections of mucus, blood, or pus (mucocolpos, hæmatocolpos, pyocolpos), which form in the remnants or rudiments of the inferior or vaginal portion of the canal of Müller (Freund, Kleinwächter, Pozzi, W. Kümmel). 8. *Paravaginal hydated cysts* (Hill, Elridge, Porak, etc.). Huguier recognizes, as the cause for the formation of the glandular cysts, the changes brought about in the genital organs by pregnancy. The symptoms produced by vaginal cysts are not marked. Very often they are not discovered save incidentally during an examination in labor, or for some other reason. If large, they may give rise to some difficulty in locomotion, the sexual relation, micturition, and defecation. They irritate the neighboring mucous membrane, and produce a leucorrhœa. If not voluminous, treatment is unnecessary; if of considerable size, the cyst should be removed by operative procedure, care being observed to avoid injury of the rectum and bladder. For cysts of medium size, simple puncture, followed by an injection of iodine will answer. Complete enucleation, however, is preferable. Chalot has made a thorough study of the so-called Wolffian cysts. He quotes Pozzi as saying that "all cysts exceeding the size of a hazel-nut should be ascribed to a Wolffian origin." In distinguishing the Wolffian cysts from the Müllerian cysts, in a general manner those may be regarded as Wolffian that present a cylindrical epithelium, and those as Müllerian that are lined by a stratified pavement epithelium. However, the form of the epithelium has not the importance that many have assigned to it. The presence of papillæ seems, on the contrary, to be peculiar to the Müllerian cysts, but are not constant. The Wolffian cysts can only occupy the anterior or, rather, the antero-lateral wall of the vagina; the Müllerian cysts may also develop here, but very rarely. A cyst or series of cysts upon the anterior wall of the vagina, passing to the side of the cervix and prolonging themselves into the base of the broad ligament, is always of Wolffian origin; the Müllerian cyst never passes beyond the fornix of the vagina. Chalot formulates the following propositions as throwing some light upon the differential diagnosis: 1. *A cyst that occupies the antero-lateral wall of the vagina, prolonging itself toward or even into the corresponding*

broad ligament, and presenting a cylindrical epithelium, ciliated or not, is beyond doubt a Wolffian cyst. 2. *A cyst that has the same seat and same prolongation, but not a cylindrical or purely cylindrical epithelium, is equally of Wolffian origin.* 3. *A cyst that has the same seat, a cylindrical epithelium, but no prolongation, or not sufficient to reach to the fornix, very probably has the same origin.* 4. *A cyst that has the same seat, but a different epithelium and no prolongation, cannot be classified.* The presence of papillæ, however, would incline to the Müllerian origin. The treatment of the Wolffian cysts does not differ in any respect from that of the other cysts of the vagina, when they are not extensive and are easily accessible. When situated high up, or where they prolong themselves toward the cervix or beyond, Chalot recommends simple incision of the projecting portion, accompanied by methodical curettement and tamponment with iodoform gauze. Justo¹⁰⁵⁰_{May} reports a case of pediculated thrombosis of the vagina, occurring in a woman 38 years of age. The tumor, of a black color, projected from between the labia majora, and was attached to the posterior vaginal wall. The pedicle was compressed by hæmostatic forceps and the tumor excised.

Dunning, of Indianapolis,⁶¹_{Feb.13} reports a cyst of the anterior vaginal wall the size of a butternut; while labial cysts are described by Alloway¹³⁰_{Jan.} and Hirst, of Philadelphia.¹⁰⁰³_{July} Hirst's cyst contained 26 ounces (709 grammes) of dark, chocolate-colored fluid.

Foreign Bodies.—A pessary, which had remained twelve years in the vagina, was removed by Summa, of St. Louis.³⁶⁴_{May 1} It was covered with calcareous deposits and lay imbedded in a deep groove. The patient had never observed ill effects from its presence. Saunders, of Glen Ellyn, Ill.,¹⁹²_{Mar.} removed quite a large sponge from the vagina of a widow, aged 40, who had introduced it some two months previously and forgotten it.

Injuries to the Vagina.—Two cases of laceration of the vagina are reported by Schülein, of Berlin.⁵⁹⁵_{B.23,11.2} In one of the cases the laceration followed coitus; the other was produced by falling upon a pointed fence, one of the points penetrating into the rectum. Ostermayer³¹⁷_{No.31} reports a case of rupture of the vaginal *cul-de-sac*, caused by the patient falling and striking the abdomen against the corner of a step. Two cases of laceration of

the vagina following labor are reported by Tuttle, of New York, ¹⁰¹_{Feb.}
Watkins, of Chicago, ⁸⁴⁹_{Nov., '91} believes that both walls of the vagina

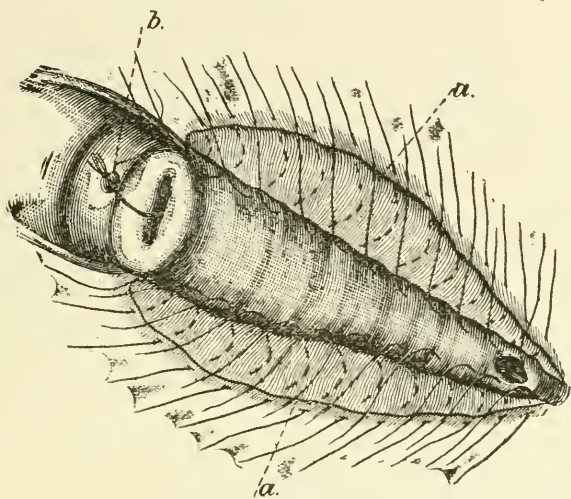


FIG. 1.

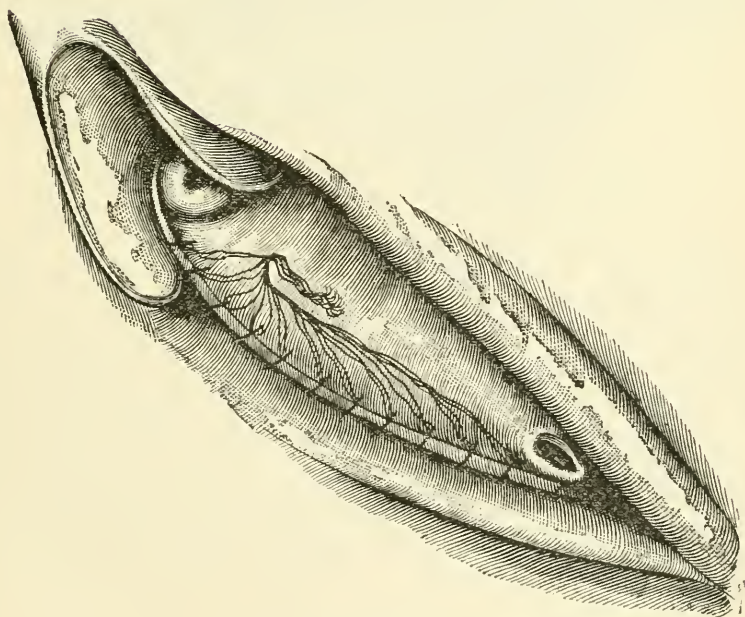


FIG. 2.
OPERATION FOR LACERATION OF VAGINAL WALL.
(*Memphis Journal of the Medical Sciences.*)

are often simultaneously ruptured by the passage of the child,
but that the rupture of the anterior wall is not often recognized,

because it is not so apparent. He classifies the anterior lacerations as unilateral and bilateral. For the resulting urethrocele and cystocele he proposes a lateral operation, which he has performed twenty times, with good results. He begins his denudation at a point to the side of the urethra, near its meatus, and extends it along the antero-lateral walls of the vagina to a point beyond the prolapse, the breadth being dependent upon the extent of the urethrocele and cystocele. The denudation may be on one or both sides, according as the laceration is unilateral or bilateral. When the denuded surface extends beyond the neck of the bladder, he fastens the cervix to the end of the speculum by means of a suture, so that the cervix may be drawn upward and backward while the sutures are being inserted and tied. The denuded surface is closed by silk-worm-gut sutures, passed from side to side and tied as inserted, leaving the ends long to facilitate removal.

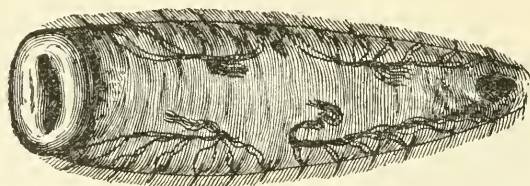


FIG. 3.—OPERATION FOR LACERATION OF VAGINAL WALL.
(*Memphis Journal of the Medical Sciences.*)

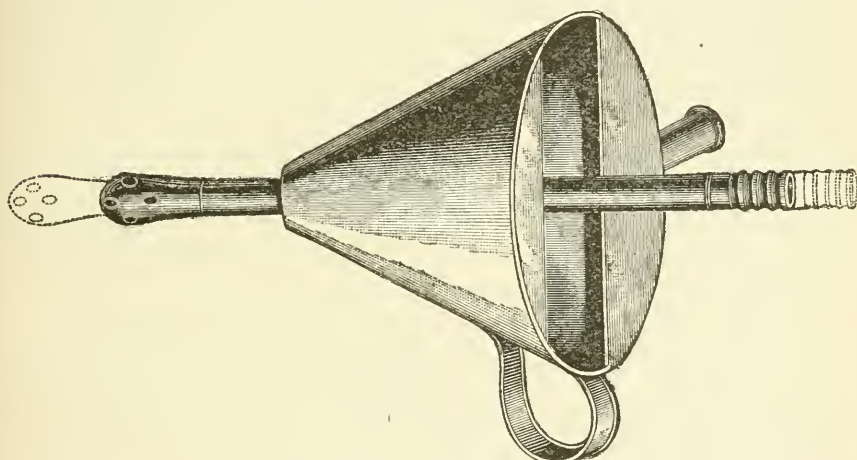
New Instruments.—Duke ²²_{Apr. 20} describes a new form of vaginal irrigating-tube, which consists of an ordinary funnel, through which a vulcanite or glass tube passes. The tube and apex of the funnel are to be introduced into the vagina, after having been filled with water, and are pressed firmly into the passage and held in close contact with the vulva. The lavage is now administered in the usual way, the return current passing through the apex of the funnel around the tube, finding its way out at the exit-pipe, on the side, to which tubing may be attached, leading to a vessel under the bed. (See cut, page 47.)

VAGINAL PORTIO.

Amputation.—A new method in amputation of the portionis vaginalis uteri is described by Borysowicz. ⁵⁶⁹_{'91} The first step in the operation consists in the excision of symmetrical triangular pyra-

mids out of the sides of the vaginal portion, in order to make the stump left after operation thinner, and to lessen the excess of vaginal mucous membrane. After suturing the wounds left by the excision of the pyramids, the vaginal portion is removed by two incisions, one anterior and one posterior, which meet in the middle of the cervical canal, under an open angle directed outward. The operation is easily performed, rapidly carried out, and the bleeding is unimportant. The healing is rapid, and there is no disfiguration of the vaginal portion.

Trachelorrhaphy.—Attention is called by Goodell, of Philadelphia,²⁰²_{Feb. 10} and Bogart, of Chattanooga,⁸²_{Dec. 5, '91} to the value of careful preparatory treatment, before performing the operation for closure



VAGINAL IRRIGATING-TUBE.
(*Medical Press and Circular.*)

of the laceration of the cervix. Goodell believes that curetting of the endometrium should always precede trachelorrhaphy. Cases of successful operation are reported by Skene Keith, of London²²_{Dec. 16, '91}; Martin, of Michigan¹⁰⁰³_{May}; and Gillespie, of Covington, Tenn.⁷⁴_{June}. Martin uses braided-silk suture that has been boiled and preserved in absolute alcohol, while Gillespie prefers silk-worm gut, using a corkscrew needle.

Cancer.—Siegheim, of Berlin,⁶⁹_{June 16} reports a case of carcinoma of the vaginal portio, occurring in a woman 54 years old, without any accompanying symptoms referable to the genital tract. The patient suffered from an attack of influenza and, during its course, from constipation and flatulence. In the examination for the cause of

this trouble, the vaginal portio and under part of the cervix were found to be entirely wanting, as was the upper part of the vagina, which ended above with irregularly-infiltrated edges. There were no carcinomatous growths in the cavity of the uterus, but a mass the size of a hazel-nut was found in the right parametrium. Microscopical examination of a piece of the ulcerated margin of the vagina revealed its carcinomatous character.

URETER.

Calculus.—Cabot, of Boston, ⁴⁹_{May} removed a ureteral calculus by an incision through the vault of the vagina just to the left of the cervix uteri. After exposing the presenting end of the stone, it was grasped by forceps, but broke off and was finally extracted by passing a blunt hook alongside of it into the ureter behind and making traction. He believes that, by a properly-selected operation, a stone can be removed from any part of the ureter by an extra-peritoneal incision. Taylor, of England, ²_{Dec.26,'91} reports two cases of calculus impacted in the ureter, which he had diagnosed by the presence of a small, painful tumor felt in the situation of one ureter, near its entrance to the bladder. In one case the stone passed with disappearance of the local tumor.

Mucous Cysts.—Clark, of London, ²_{Feb.6} refers to a specimen of ureter containing in its upper half numerous cysts, with an average size of hempseed grains. The cysts had produced obstruction and hydronephrosis. A few small cysts were present in the calices and pelvis of the kidney and others in the bladder.

DISEASES OF PREGNANCY.

By A. LUTAUD, M.D.,

PARIS.

STERILITY—FECUNDATION.

Mary Dixon ²²_{Sept. 23} contradicts the theory accepted by a large number of physicians, that excessive intellectual work is a cause of sterility. She has been for several years at the head of important establishments for instruction of a higher grade, in which young girls, who were preparing themselves for teaching, devoted themselves to fatiguing and prolonged intellectual work; no disturbance of the genital functions was ever observed among the scholars or the female professors. The statistics collected by Dixon prove, on the contrary, that these young girls, once married, had numerous and fine children, while still continuing very active intellectual work. Gottschalk ⁴⁰⁴_{No. 49; July 30} ² considers uterine atrophy as one of the most important causes of sterility. He does not attribute this atrophy to want of sexual development, but to general affections occurring in young girls at the period of puberty. He cites as examples four cases of uterine atrophy observed in sterile young women who had acute typhoid fever at the time of the first menstruation. In other cases the atrophy was due to scarlatinal oöphoritis. Gottschalk advises surveillance of the genital organs after acute fevers attacking young girls at the period of puberty, and attaches the greatest importance to the treatment of amenorrhœa. He particularly advises the use of santonin and of permanganate of potash, as internal medications; for external treatment, he advises applications of iodine and ichthyol, and the use of hot baths. If the amenorrhœa is not overcome at the proper time, the uterine atrophy and sterility quickly become incurable. McKee ⁴²⁶_{Jan.} has studied obesity as a cause of sterility in the male. He cites the case of three sisters who were successively married to stout and lean men. The first marriage (stout man) was barren, and the second marriage (lean

man) was, on the contrary, very productive. McKee also cites the opinion of various authors, among them Kisch, who consider obesity as a cause of sterility in both sexes.

Arthur Edis²²_{Apr. 20} gives the general causes of sterility in women, and states that in Great Britain there are only 500,000 sterile married women, which gives a proportion of 12 per cent. of unproductive marriages. He previously published²_{Sept., '91} several cases of sterility due to the persistence of the hymen, in women married for several years. These cases were cured by vaginal dilatation practiced under anæsthesia.

AzoöspERMIA and OligozoöspERMIA.—Attention was called by the Bern Medical Society to the frequency of azoöspERMIA.²¹⁴_{p. 383} In the case of twenty-eight sterile women, examination and observation of the husbands was made. In eleven of these twenty-eight husbands, the presence of permanent or temporary azoöspERMIA was determined; among these eleven the following peculiarities were observed: three had gonorrhœa, and six had had an attack of gonorrhœa before their marriage; these nine gonorrhœaic subjects had chronic, simple, or double epididymitis, and two showed at the same time atrophy of the testicles. In two of those affected by azoöspERMIA no previous affection could be proven, neither was there any malformation of the genital organs. In these eleven azoöspERMIC husbands the sexual power was intact. In all the spermatic fluid was of the normal consistence; the quantity for each ejaculation varied from one to twelve cubic centimetres (according to Conrad, the average quantity of spermatic fluid ejaculated during each coitus is four cubic centimetres). In six other individuals married to sterile women, who were also observed, oligozoöspERMIA was present. The proportion of the seminal corpuscles was reduced to one, two, or three per mille; their vitality was greatly diminished. The author estimates that in one hundred sterile marriages the sterility should be attributed to the existence of azoöspERMIA or oligozoöspERMIA in the husband in a proportion varying from 40 to 70 per cent.

Migration of the Ovule. Rôle of the Tubo-ovarian Peritoneum in Fecundation.—Henry Moran²¹_{July 10} has studied the tubo-ovarian peritoneum and assigns to it an important rôle in the migration of the ovule. In the cat, dog, and other animals he has proved the presence of small cylindrical cellules, the ovular nucleus of which is

voluminous, and the free surface of which is furnished with short vibratory cilia, usually larger than those commonly found upon other identical cellules of the organism. The spaces bounded by these layers of cilia are covered by small polyhedral cells adhering by reciprocal pressure. The presence of these series or trains of vibratory cells on the tubo-ovarian peritoneum explains, he believes, in a sufficiently clear manner, the migration of the ovarian ovule toward the Fallopian tube, without requiring the actual intervention or adaptation of the tube. While this phenomenon, which, however, has never been actually proven *de visu*, may be explained by the state of turgescence existing in the genital organs at the moment of ovulation, there are, on the other hand, many animals in which the fimbriated extremity of the tube is attached to the walls of the abdomen by a veritable ligament which prevents the displacement of the tube. In the guinea-pig, for instance, a fine ligament is found extending from the fimbria to the lower edge of the last false rib, rendering immovable, to a certain extent, the tubal extremity. In this animal, at least, it would be difficult, not to say impossible, to admit that there could be a sufficient displacement of the fimbriated end of the tube to permit its adaptation to the ovary. In these animals, it is said, the ovary is encapsuled by the peritoneum; this would, however, not prevent the ovule from falling into the peritoneum, where it might remain, did it not there find the ciliated tracks intended to conduct it toward its true destination. It is well-known, on the other hand, how rare it is, on account of this anatomical disposition, to find, among this class of animals, peritoneal pregnancy. Do these anatomical conditions observed in animals also exist in women? Morau has only once had occasion to examine the normal tubo-ovarian peritoneum, in a case of castration for neuralgia; the operation was done upon a woman aged 25, several days after the period of menstruation. Upon the fragments of the peritoneum which he was able to collect, there were evidently ciliated tracks. If normal proofs are relatively rare, the same is not the case with pathological proofs.

Waldeyer and Leydig long ago mentioned these tracks of ciliated cells found in the peritoneum of the smaller pelvis. Malassez and de Sinéty have also had occasion to observe many identical appearances in cases of tumors of the large ligaments or in ovarian cysts. How else than by the presence of these ciliated tracks

could the very curious cases of pregnancy quoted by Drejer, Rokitsansky, Oldham, Maurer, Luschka, Conrad, Langham, and many others be explained?

General researches in regard to sterility have been published by Mary Dixon, ⁷⁶⁰_{Aug. 6} de Sinéty, ²²¹_{Aug.} J. X. Allen, ⁷⁸⁶_{June} Seligmann, ⁵⁷_{Dec. 20} and by V. Beebe. ¹⁰⁵_{Mar. 15}

VOMITING OF PREGNANCY.

Choteau ²³⁶_{Apr.} reports a case of uncontrollable vomiting in a woman four months pregnant, cured by suggestion. "As a last resource before employing extreme measures (dilatation of the neck, etc.), I conceived the idea of using suggestion. To my great astonishment, I readily put the patient to sleep by means of binocular pressure, and during this sleep suggested the idea of cure; I forbade her to vomit, and ordered her to eat and drink upon awaking. Having awakened her from the hypnotic state, she immediately asked for and drank a bowl of milk, and ate several biscuits, whereupon she fell asleep and slept for several hours. The next day the vomiting grew less, and the patient was not so much weakened. The third day I again put her to sleep and suggested the idea of complete recovery; from that time the vomiting ceased entirely. Neichtoube, of St. Petersburg, ⁴²²_{Dec., '91}; ¹⁴⁷_{July} obtained excellent results by the use of cocaine, according to the following formula: Sulphate of cocaine, 1 gramme (15½ grains); distilled water, 60 grammes (2 ounces). Ten drops of this solution were given, repeating the dose one hour after, and a third dose being given three hours later, if the vomiting had not ceased. At the same time, tampons of cotton saturated with vaselin and cocaine—vaselin, 10 grammes (2½ drachms); cocaine, 1 gramme (15½ grains). Routh ³⁵⁴_{Mar.} states that he has always been able, during the last seven years of his practice, to stop the vomiting occurring during pregnancy by application of tincture of iodine to the neck and inferior portion of the cervical canal. He applies the iodine with a brush, with the aid of the speculum. Hamon ¹⁵¹_{Feb. 6} has been able to control the vomiting occurring during pregnancy at periodical intervals, attributed to malaria, by quinine given hypodermatically, each injection of 0.40 gramme (6 grains) of chlorhydrate of quinine being made in the retro-trochanteric region. In a very complete paper, Robert Reid, of Newton, Mass., ⁵⁴⁷_{Feb.} advocates rectal alimen-

tation, considering this treatment infinitely to be preferred to preliminary abortion. He cites a case in which he was able to nourish a patient during one month through the rectum, leaving the stomach at rest. Wm. Judkins, of Cincinnati, ⁵³_{Mar. 26} quotes a peculiar case of sympathetic vomiting occurring in a man during the pregnancy of his wife; this vomiting, which was very difficult to control, manifested itself as soon as his wife became pregnant.

The particulars furnished by the family of this person showed that his father also suffered from almost uncontrollable vomiting during the first three months of his wife's pregnancy. Edward Otis, of Boston, ⁹⁹_{Dec. 3, '91} recounts a very instructive case, which proves the value of Copeman's treatment. A young woman, married for the first time, became pregnant. The vomiting was extremely violent and uncontrollable; there were present, at the same time, albuminuria, and other symptoms of such a grave nature that induced abortion was decided upon and practiced after one consultation. The abortion took place and the patient recovered. Having become a widow, she remarried and again became pregnant. The same serious symptoms presented themselves (uncontrollable vomiting, albuminuria, etc.). Abortion was decided upon and begun; a tupelo tent was introduced and left in position during a part of the day, until the dilatation of the external orifice was complete. The vomiting ceased at once, the patient was able to retain food, and abortion did not occur. The full term of pregnancy was reached, and the patient was delivered of a living child. Emery ¹⁵⁷_{Jan.} also effectually controlled the vomiting of pregnancy, occurring in a case of retroflexion, by digital dilatation of the neck. Bevell, of Winfield, ⁵⁹_{Aug. 27} and Murphey, of Bowling Green, Ky., ¹_{June 4} cited cases which could not be overcome by ordinary means, and in which it was necessary to bring on abortion at the end of the second month. T. Ridgway Barker ²¹⁰⁶_{Dec.} attributes the vomiting of pregnancy to a reflex action produced upon a sensitive nervous system by the development of the ovum, and considers it as rarely a grave complication. When the vomiting persists after the fifth month, it is to be attributed to independent pathological causes, which should be sought for and treated. The vomiting has no influence upon the fœtus, nor upon parturition. John Martin, of Manchester, ^{2150 and Max Weiss, of Vienna, ¹⁶⁹_{Aug.} and Moritz Weil, of Vienna, ¹⁶⁹_{Aug.} have written on the treatment of}

the vomiting of pregnancy, the last named advocating the use of menthol.

PREMATURE LABOR.

Premature Labor in Affections of the Heart.—Doléris, of Paris,¹⁶²_{May} quotes the case of a woman, aged 25, affected by aortic insufficiency and dilatation, upon whom he practiced premature delivery. The patient was two months pregnant, and, owing to the extreme gravity of the cardiac symptoms, abortion was decided upon. Preliminary disinfection of the vagina by injections of sublimate was performed, and tampons of iodoform gauze applied. Doléris then rapidly detached the ovum with the curette and extracted it. An intra-uterine injection was afterward made, and a tampon of iodoform gauze packed in the vagina. Several fragments of chorion became detached and were spontaneously ejected during the evening; at the end of fifteen days the patient had recovered. Doléris calls attention to the advantages presented by rapid abortion by means of the curette: no loss of blood, rapidity of operation, and complete antisepsis. Following this communication, made at the Société Obstétricale de Paris, Guéniot and several other members expressed the opinion that affections of the heart do not justify abortion, and cited several cases of pregnancy in women having very serious cardiac affections, which terminated in confinements at full term, without complications.

Premature Labor Followed by Death.—Christopher Tompkins, of Richmond,²³_{Apr.} describes a case of premature abortion induced in a woman pregnant for three and a half months, which was followed by death. The patient was a primipara, aged 24; she had been reduced to a condition of extreme emaciation through uncontrollable vomiting. Abortion was decided upon and practiced, with the assistance of McCann and Jeffery. The neck of the uterus was dilated, with a laminaria tent, sufficiently to admit of the introduction of the little finger. A Barnes dilator was then inserted, the patient was anæsthetized, and the fœtus extracted with the forceps. The uterus contracted well after the operation; the patient succumbed two hours later, in a state of collapse. Although death in this case may be attributed to the extreme debility of the patient at the moment of operation, Tompkins calls attention to the fact that premature labor is far from being as harmless as it is generally pretended.

Premature Labor in Arthritis during Pregnancy.—Gaulard, Tracon, and Bué, of Lille, ²³⁶_{Jan.} dwell upon the aggravation caused in arthritis by pregnancy, and propose premature labor from the seventh month. Confinement exercises a good influence upon the arthritis of pregnancy; every one admits this, and no one wishes to interrupt the pregnancy. These scruples seem very exaggerated nowadays; formerly artificial premature labor was an operation sufficiently to be dreaded, but to-day antisepsis has greatly ameliorated the prognosis. In all recent statistics the mortality of the patients is shown to be reduced to zero, while obstetricians nearly all admit that it presents great advantages for the child. Why reject the operation on account of prejudice, in a malady so serious as the arthritis of pregnant women? Lorain was unable in one case to prevent ankylosis, but this was exceptional, and is insufficient to serve as a solid basis for such a formal conclusion as that advanced by Fournier, Mercier, etc. At the obstetrical clinic of Lille, Gaulard practiced and recommended artificial premature labor in severe arthritis. The two cases published are very conclusive, and prove that the procedure is justifiable, and that the doubts expressed by some writers are at least exaggerated. It is essential, according to Gaulard, to act, as nearly as possible, at the beginning of the affection. If intervention is delayed too long, the articular lesions may reach such a serious stage that they become irreparable.

1. Krause's probe should be absolutely rejected, except in cases of stringent necessity. Labor induced by its use is very slow, and the infants succumb in a much greater proportion than in other procedures. 2. In those cases in which it is advisable to induce labor in a primipara, or in a multipara with rigid cervix, recourse should first be had to Tarnier's balloon, followed, as soon as the cervical canal has been sufficiently opened, by the balloon-dilator of Champetier. 3. In those cases in which the neck is sufficiently penetrable, it is advisable to at once place Champetier's balloon-dilator in position. 4. This procedure is all the more indicated when it becomes necessary to advance the labor rapidly. It is also necessary, especially in cases of premature rupture of the membranes, in which the Champetier balloon-dilator, introduced into the cavity of the ovum, will suffice to provoke labor when Tarnier's would be inadequate. 5. Rupture of the membranes

may be easily avoided when Champetier's instrument is used. Detachment of the placenta sometimes occurs; but, in this case, it is sufficient to inflate the dilator to completely arrest the hæmorrhage. 6. The balloon-dilator should not be entirely filled in the beginning. If this is the case, it will be seen above the superior strait, not sufficiently exciting uterine contractions, and tending to induce changes in the presentation. 7. These changes of position seem to occur quite frequently with the Champetier dilator, although they may not all be attributable to its use. Nevertheless, considering their frequency, it would be well to carefully observe the foetus, in order to immediately correct any irregular presentation which might be produced.

Premature Labor by the Aid of Glycerin.—Pelzer³¹⁷_{Nov.2} has had good results with the following mode of treatment: 100 cubic centimetres (3½ ounces), of sterilized chemically-pure glycerin are injected between the membranes and the uterine wall. Great precautions should be taken not only against septicæmia, but also against the introduction of air into the uterine cavity. Labor-pains soon begin. The membranes readily present themselves, and labor is generally easy. In two cases in which labor was induced for contracted pelvis, the pains began one-half hour after the injection. In another case the woman had reached the thirty-third week of pregnancy; she had been losing blood for fourteen days and her temperature was 104° F. (40° C.); the pains began one and a half hours after the injection of the glycerin. A dead infant was rapidly delivered by version and the woman was restored to health. According to Pelzer, intra-uterine injections of glycerin are useful not only to induce premature labor, but also as an aid to labor at full term.

Induced Labor.—Gallois, of Grenoble,⁹⁹⁶_{Mar.10} quotes a case of confinement occurring after six months of pregnancy; the patient had contracted pelvis, and cephalotripsy had previously been performed. Gallois used the balloon of Champetier de Ribes, and was not greatly pleased with the result. The instrument caused change from vertex to breech presentation; and the extraction of the head last, in such a small and uniformly contracted pelvis, was extremely laborious. There was, besides, procidentia of the cord. Gallois concludes by saying that with such a flat pelvis, with moderate contraction, the use of the balloon-dilator of Champetier was indi-

cated, but in the case in question it would have been preferable to use (although much more time would have been required) either the douches of Kiwisch, Krause's sound, or any other means which would not have modified the presentation, and with whose use procidentia of the cord would have been less to be feared.

Premature Labor in Bright's Disease.—Budde⁶⁷³_{Mar.} criticises the opinion advanced by Tyson, who claims that it is necessary to induce premature labor in the case of women attacked by Bright's disease. He cites the case of a woman having albuminuria, who was confined three times at full term and bore living children without this malady having become in any way aggravated.

Care of the Child.—Delthil, of Paris,³_{Sept.21} recommends premature confinement in all cases in which embryotomy has been practiced in former pregnancies, and the following procedures when a child has been delivered at term: The child should be at once plunged into water at 39° C. (102.2° F.) and left there for from twenty-five to forty minutes, in order to raise its temperature, until it shows by its energetic cries that respiration has become well established; it is then placed in a room the temperature of which is 22° C. (71.6° F.), and should be well covered with wadding. He does not use the couveuse in such cases, as this apparatus is very costly and sometimes difficult to find and to regulate; its use, besides, presents the inconvenience of transferring the child when it is to be nourished or cleansed from an atmosphere of 34° C. (93.2° F.) to a room of which the temperature is generally not above 18° C. (64.4° F.). Oui, of Bordeaux,⁴⁸_{Dec., '91} has published a very complete work upon the principal methods of inducing premature labor.

ABORTION.

Criminal Abortion.—Bellin, of Charkoff,¹⁶²_{Oct., '91} quotes eight cases in which criminal abortion was induced by means of nitric acid; the individuals in question took from 15 to 20 drops daily and gradually augmented the dose; the symptoms manifested themselves from six weeks to three months after the ingestion of the toxic. The abdominal pains were very intense. Three women succumbed from the effects of the abortion, two became insane and one was artificially delivered. Bellin considers that the action of the nitric acid as an abortive is due to a poisoning of the blood. J. H. Branham¹⁰¹_{July 2} cites a case in which a woman had

herself introduced a laminaria tent into the uterus in order to bring about abortion; at the end of twenty-four hours she desired to withdraw it, but the cord broke and the tent remained in the uterus; grave symptoms presented themselves, the temperature being 103° F. (39.46° C.), and the tent could not be removed except by incising the neck. Notwithstanding all care and antiseptic washes, the patient died of septicæmia. W. G. Wylie also reports an interesting case of auto-abortion in a woman, aged 25 years, who had managed to introduce into her uterus a glass tube of about the thickness of an ordinary lead-pencil. She was unable to withdraw this tube; abortion occurred several days after, but was followed by grave symptoms—abdominal pains, intense fever, fetid discharges, etc. Wylie found a tumor of the size of an egg in the left ovarian region. Laparotomy was practiced and the glass tube was discovered between the kidney, the ovary, and the uterus, surrounded by pus. It was impossible to find the point of penetration. The patient completely recovered. Another case of criminal abortion was presented to the Obstetrical Society of Philadelphia.^{23 Feb.} A prostitute introduced a knitting-needle into the uterus, perforating the vaginal and uterine walls; acute symptoms of septicæmia presented themselves. She was admitted to a hospital, where she died, notwithstanding the fact that laparotomy had been practiced in order to evacuate a large abscess which had formed in the abdomen. Another case of death by septicæmia following a criminal abortion was quoted by Crowe, of Baltimore.^{104 Sept. 17} In this case the abortion was induced by the insertion of a tent into the uterus by a person having no knowledge of medicine. Cowles, of Westfield, Mass.,^{23 Feb.} has also published the case of a Chinese woman, aged 32, in which death occurred by septicæmia, abortion having been induced by a midwife.

Spontaneous Abortion.—Schuhl, of Nancy,^{162 Feb.} calls attention to successive abortions, and the great number of causes producing them, which, though numerous, are not all of equal importance. Two in particular merit the attention of the obstetrician: uterine infections, and among these retroversion in particular, on account of the inclosed position of the uterus resulting from it, when this pathological condition has not been recognized. The other cause is syphilis, either in the maternal or paternal parent, which causes, through the infection of the ovum, pathological con-

ditions incompatible with fœtal development. Paternal syphilis in particular, since it is often unknown to the physician in attendance, should suggest itself when he is called upon in successive abortions and is unable to discover the cause in the mother. Arnould, of Marseilles, ¹⁰⁰_{July 28} quotes several serious cases of abortion occurring during convalescence after small-pox. The grave symptoms are due to the retention of the fœtus, which has died during the acute stage of small-pox, and which is frequently only expelled during or after convalescence. Onimet, of Montreal, ²²¹_{Apr.} believes that syphilitic abortion is occasioned by lesions occurring in the fœtus or its annexes, and usually occurs about the seventh month. The father alone may transmit syphilis to the product of conception; this is most liable to occur when conception takes place soon after he has become infected. When the father and mother are both syphilitic, the child rarely escapes contamination. The mother having been syphilitic before pregnancy, the chances of bringing a healthy child into the world are greater in proportion as the syphilis is of long standing. The nearer the time of infection approaches the term of pregnancy, the more chance there is of the child escaping infection. The child born of a syphilitic mother may come into the world presenting lesions of a manifestly syphilitic nature, or it may, to all appearances, be born healthy and only become syphilitic after several months or even several years. Syphilis does not occasion any special symptoms following upon confinement. A mercurial treatment instituted in the beginning of pregnancy, in syphilitic subjects, often enables the mother, first, to carry her child to the full term; second, to bring forth a living child, which may, however, sometimes be syphilitic; third, in some few cases, to give birth to a living child without any lesions. Sometimes the child born healthy of syphilitic parents does not become at all infected when the mother has been treated during pregnancy. The father being syphilitic, if the mother, upon becoming pregnant, subjects herself to an hydrargyric treatment there is a considerable chance that the pregnancy may come to an end at full term by the birth of a healthy child.

Preventive Treatment.—Turazza ³¹⁷_{No. 9} has used asafœtida with success in the treatment of habitual abortion, in the form of pills in doses of 0.20 gramme (3.1 grains) daily, as soon as pregnancy is suspected in women subject to abortion. Gerald, of Coliman,

S. D.,⁸²_{Apr.16} has had good results from viburnum prunifolium in women subject to miscarriages. The same opinion is given by Masson, of Kengsley.⁸²_{Mar.} Henry Coe, of New York,¹⁰¹_{May} attributes the predisposition to miscarriage in certain women to retroversion, and claims to have obtained excellent results by the use of pessaries when a miscarriage seemed imminent. McKee, of Cincinnati,¹⁰⁵¹_{Mar.} has successfully combated successive miscarriages by the use of chlorate of potassium, as already indicated by Sir James Y. Simpson; he gives this medicament in doses of from 1 to 2 grammes (15 to 30 grains) daily.

Treatment of Hæmorrhage before Miscarriage.—Cases of hæmorrhage occurring before miscarriage have been reported by Martin,¹_{Feb.} by Blood,¹⁹²_{Aug.} and by Hirst, of Philadelphia.¹⁰⁶³_{Feb.} The authors insist upon the necessity of rapidly bringing the abortion to an end in the treatment of the hæmorrhage.

Treatment of Retention of the Placenta in Abortion.—In a case of retention of the placenta, the patient having expelled a fœtus of six months, John Morton, of Mussoorie,²³⁹_{Dec., '91} has successfully used injections of cold water. Immediately after the lavage, the uterus contracted and the placenta was expelled. Kuppenheim,¹⁹_{Jan.23} advises the use of Recamier's curette in all cases of retention of the placenta after abortion; he disinfects the vagina, anæsthetizes the patient, who is then placed in Sims's position; when the uterus is dilated he practices digital extraction, but Recamier's curette is more convenient in miscarriages of from five to six weeks, when the neck is closed. H. C. Locke,¹_{Dec.26, '91} advises the same treatment, rapid extraction with the curette and injections into the uterus of a 1-5000 solution of sublimate. Vibert, of Paris,²⁰⁰⁷ gives the following *résumé* of the practice of Tarnier, in cases of retention of the placenta after abortion: 1. Antiseptic preliminary injections either of permanganate of potash $\frac{2}{1000}$ or of carbolic acid water $\frac{2}{1000}$, with iodoform or salol dressings to the vulva. 2. In case there is danger of infection through putrefaction of the placenta, recourse should be had to digital and antiseptic curettage after dilatation. 3. If the physician is called when septicæmia has become generalized, or when the symptoms of infection are very pronounced, it becomes necessary, considering the imminence of the danger, to resort to curettage of the uterine cavity, using, at the same time, all antiseptic precautions. Bureau, of Paris,²⁴_{Apr.3}

reports a case of septicæmia following retention of the placenta in an abortion of three months. He attributes the septicæmia to an attempt to extract the placenta, which was attended with but incomplete results; he was obliged to make a second attempt, during anæsthesia, and withdrew from the uterus fragments of putrefied placenta. Bureau considers that the uterus should be completely emptied. An entire placenta in the uterus is not dangerous, but fragments rapidly give rise to grave symptoms. Moore, of Macon, Ga.,⁸¹_{July} also dwells upon the necessity of curettage in retention of the placenta after abortion. Complete works on abortion have been published by Maygrier and Demelin,²³⁶_{Feb.} McKee,¹⁰⁰³_{No. 11, '91} J. A. Watson,⁴³_{May} Kelly,²¹³_{Nov., '91} Walter Crow,²³_{May} Döderlein³⁴_{May 17}; Rochet, of Antwerp²⁵⁶_{Aug. 15}; M. Ward, of Scranton.¹⁰⁰³_{Sept.}

HYDATIFORM MOLES.

Lwow³¹⁷_{No. 1} has observed four cases of pregnancy with hydatiform moles, and attributes their formation to previous uterine maladies, (endometritis, retroversions, etc.). In two cases the expulsion of the moles occurred spontaneously; in the two other cases they were extracted without accident by the hand. Porak, of Paris,²⁴_{Apr. 3} presented to the Société de Médecine a vesicular mole expelled after a normal confinement. The hydatiform mass was spontaneously expelled immediately after the placenta. Engel³¹⁷_{No. 1} has observed five cases of vesicular moles in a practice of four thousand confinements, which proves the rarity of this complication. Engel has removed them by dilating the uterus with compressed sponges, and has then extracted the mole with the hand. Warmann³¹⁷_{May 14} quotes the case of a woman, aged 22, who had two successive molar pregnancies; the last mole, which was spontaneously expelled, was enormous, and weighed $5\frac{1}{2}$ pounds (2.5 kilogrammes). It did not contain any traces of embryo or placenta; the woman recovered rapidly. Guelliot⁵⁷⁷_{Nov., '91} presented to the Medical Society of Rheims a specimen taken from a young woman aged 22, recently married; six weeks after her marriage uterine hæmorrhage, at varying intervals of from two to three days, occurred, with uncontrollable vomiting. Sudden attacks of violent colic, with very high temperature and swelling of the abdomen, were present; the uterus was very large and bilobed. The woman was admitted to the hospital, and after three days was delivered of a hydatiform

mole, of which the vesicles resembled white currants; it was expelled in portions. The patient afterward suffered from chills and fever, and these symptoms were overcome by appropriate treatment. In the specimen presented by Guelliot nearly all the vesicles were empty and had collapsed; some few, however, retained their form and contents. The case is interesting on account of its relative rarity. Bowers, of Laplace, Ill., ⁷⁷⁹_{Dec., '91} reports a case of mole in a woman, aged 42, who had previously had eight normal pregnancies. Expulsion occurred spontaneously. Bowers attributes the formation of uterine moles to hypertrophy and cystic degeneration of the villi of the chorion. He cites also, among other occasional causes, diseases of the uterine mucous membrane, death of the fœtus, absence of the vessels of the allantois, and stenosis of the umbilical vein. Cases of hydatiform moles have been reported by Caballero ⁶³⁴_{July 15}; J. B. Ross ²⁸⁵_{July 15}; Loviot ¹⁹⁴_{Nov., '91}; Walker, of Chicago ²³_{Sept.}; M. Craig ⁹_{Apr.}; Bressler, of Baltimore. ¹⁰⁴_{Jan. 2}

TUMORS COMPLICATING PREGNANCY.

J. Dodge ¹⁸⁵_{Nov., '91} practiced ovariectomy upon a woman pregnant for two months. The cyst removed weighed 36 pounds (16.4 kilogrammes); the woman was confined at full term and delivered of a healthy child, without further complication. Potherat, of Paris, ¹⁵²_{Mar. 25} reports the case of a woman upon whom ovariectomy had been performed twenty-five days after confinement; the operation was rendered necessary on account of a suppurating abscess of the pelvis. The conclusions of the author are as follow: 1. Pregnancy and confinement are possible with the existence of an ovarian cyst. 2. Confinement aggravates the prognosis, since it may induce serious inflammatory conditions in the vicinity of the cyst. 3. Surgical intervention should be employed. Meredith, of London, ²_{v. 2, p. 131} reports two cases of double ovariectomy during pregnancy. The cysts were very large and adherent; it was necessary to establish thorough drainage after the operation. The two women were delivered of living children, at full term, without any complications. A case of ovariectomy successfully performed during the third month of pregnancy has been published by Polaillon, of Paris. ⁶_{Aug. 13} Pregnancy continued normally, and delivery of a living child occurred without complications. Gardner, of Montreal, ²⁸²_{Feb.} has published four cases of ovariectomy

during pregnancy, of which three were successful. Myers, of Fort Wayne, Ind., ⁶¹_{July} describes a case in which the patient recovered, but the operation was followed by the expulsion of a dead fœtus. Myers and the majority of ovariologists advocate ovariectomy during pregnancy. Carlo Decio, of Milan, ⁴⁸_{Sept.} reports a case of laparotomy, performed nineteen days after confinement, for the removal of two large fibrous tumors; the patient recovered rapidly. Buisseret ²⁹³_{July} gives the indications for surgical intervention in pregnancy complicated with internal fibromas. His conclusions are as follow: 1. *Early* hysterectomy is indicated in cases of fibromatous gravid uterus, when the tumor is large, non-pedicated, and, particularly, when it is situated at the fundus of the uterus. 2. Surgical interference is especially indicated in old primiparæ; it is necessary, however, in his opinion, to consider whether the patient prefers to undergo greater risks, with more chance of having a living child. 3. The extra-peritoneal treatment of the pedicle offers the most chances of success. This conclusion, of the three, is the one most firmly established by the author.

Flaischlen ³¹⁷_{No. 20} has performed laparotomy for the removal of fibrous tumors in a multipara during the third month of pregnancy. An ovarian cyst had been diagnosed. The operation was successfully performed, and pregnancy continued its course; the patient was delivered of a child at full term, without complications. In a very complete work by Vander Veer, of Albany, ¹⁰⁰³_{July} on the treatment of uterine cancer as a complication of pregnancy, the author advises vaginal hysterectomy at the beginning of pregnancy, and total extirpation when pregnancy is further advanced. H. Moeller ¹⁶⁹_{Aug.} has also written on cancer in pregnancy.

ALBUMINURIA IN PREGNANCY.

Charles Smith, of Portland, ⁹⁹_{July 21} read before the Medical Association of Maine a paper on this subject, in which he states: 1. That in a considerable number of pregnancies hyperalbuminuria is present in the blood, but that this symptom, however, has no pathological signification. 2. Albuminuria without disturbances of arterial tension is of frequent occurrence in primiparæ and may be treated, in the majority of cases, without producing eclampsia. 3. It is parturition itself which is the promoting cause of eclampsia, by reflex excitation of the vaso-constrictors acting upon the kidneys.

4. The albuminuria of pregnancy is itself of but little importance, unless it be associated with Bright's disease and diminution of the urine.

Cagny, of Paris, ²¹²_{Mar. 25} in an important thesis, studies the albuminuric lesions of the placenta, describing the exterior aspect of the albuminuric placenta, which consists, particularly, of the presence of white fibrous infarcts. As regards the frequency of these lesions the presence of albumen has been established in 171 out of 2349 cases of pregnancy. The examination of the placentas has proven clearly, fifty-six times, the presence of infarcts in a proportion of 33 per cent. Of these 171 albuminuric cases 111 were primiparæ, and among these 111 primiparæ 38 of the 56 cases above mentioned were found,—rather more than half. This fully confirms the following statement by Ronhaud: “The fact of being a primipara forms, in a large proportion, the principal predisposing cause of placental apoplexy,”—a statement which may be somewhat modified as follows: The state of being a primipara, inasmuch as it is a cause of albuminuria in the pregnant state, is largely a predisposing cause of placental apoplexy. We may ask whether the quantity of albumen contained in the urine has, as believed by certain authors, an influence upon the production of hæmorrhage of the placenta? Nothing seems less proven, and cases have been observed where, with a minimum quantity of albumen, infarcts have been found; while there are other cases in which these infarcts were absent, although the proportion of albumen, at the time when the urine was examined, was much more considerable. It is important to remark that these lesions are not found unless albuminuria was present before parturition. They do not occur in temporary albuminuria presenting itself during labor. The opinion may thus be advanced that, in the case of a woman truly albuminuric, the chances of alteration of the placenta are considerable. Gilles, of Marseilles, ⁴⁶_{Apr.} advocates the use of chloral in doses of .2 grammes (30 grains) daily for all pregnant women having albuminuria, this to be given throughout the entire duration of pregnancy. None of the women subjected to this preventive treatment were attacked by eclampsia. Very complete works on albuminuria during pregnancy have been published by Schauta, ⁵⁷_{July 3} Tibbals, of Detroit, ¹⁸⁵_{July} Montgomery, ¹⁴⁴_{Apr.} and Bickham, of New Orleans. ¹²_{June}

OBSTETRICS AND PUERPERAL DISEASES.

By P. BUDIN, M.D.,

ASSISTED BY

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PARIS.

PHYSIOLOGY AND MECHANISM.

Accommodation in Obstetrics.—Rey,¹⁹⁴_{Nov., '91} in discussing this subject, states: 1. That the head turns in the hollow because the shoulders turn in, becoming engaged in the superior strait. When the head turns there is no torsion of the neck, the trunk follows, and the two movements are connected, being produced simultaneously. 2. That the movement of the shoulders is determined by the fact that, in uterine contraction, one of them must rotate upon the oblique plane, directed by the psoas muscle. / 5

In the discussion which followed this communication, Budin easily refuted this theory. He reported numerous cases where the head alone turned, the back remaining behind. As to the rôle of the psoas, it is purely imaginary; for when the uterus contracts it forms a hard globe, which completely isolates its contents from the maternal walls. The shoulders, pressing against the interior uterine muscle, can exercise no influence on the psoas muscle, which is above and outside the superior strait. Guéniot, Pajot, and Porak are of the same opinion as Budin. Luigi Acconci,⁷³⁹_{Nos. 7, 8, '91} studies the physiological uterine contraction from experimental researches on animals and on women, and gives the result of clinical researches on uterine inertia, with treatment.

Lindsay,¹_{Aug. 6} having studied the different positions in which a woman in labor can be placed,—upright, sitting, dorsal, and genupectoral,—recommends the lateral position rather than the dorsal decubitus as entailing fewer ruptures of the perineum.

Hiram Corson,⁷⁶⁰_{Aug. 20} speaks forcibly against certain accoucheurs, who, as soon as labor has commenced, immediately proceed to manual dilatation of the neck and application of the forceps. In

this way the delivery in a primipara would be terminated in an hour. The argument in favor of this method is that time is thus saved for the accoucheur. Besides other inconveniences of this procedure, Corson recalls that by far the greater number of ruptures of the perineum are due to the forceps. He also disapproves of intra-uterine injections, made after even normal labor, as, in certain cases, they have been followed by death.

Ralph Waldo ¹⁰⁰³_{Mar.} states that the greater number of diseases which the gynæcologist is called upon to treat are due to childbirth; hence great attention is necessary on the part of the physician. He insists on antiseptic care, and advises chloroform if the contractions are too painful. He recommends Crédé's method and artificial delivery if the after-birth is not expelled after an hour. He uses tincture of iodine in post-partum hæmorrhages. For after-use he extols antiseptic cleansing, but denies the efficacy of injections without special indication. During the first week following the accouchement he gives extract of ergot three times a day to increase retraction of the uterus and to avoid septicæmia. The woman should remain in bed for fifteen days. In ophthalmia of the newborn he uses nitrate of silver, 5-per-cent., as a prophylactic.

Fournel ¹⁹¹_{July} writes upon accouchement by the vertex, and describes the manner of obtaining version of the fetal head at the beginning of dilatation. His method consists in introducing into the uterus, from the side toward the face, an elastic balloon, which when in place is filled with liquid, and which when filled has a diameter of from ten to fifteen centimetres. Under the influence of the contractions the head engages, but the forehead is arrested by the balloon, while the occiput alone descends, version being thus secured. The author concludes that by means of an elastic balloon, one may influence the mechanical phenomena of childbirth, the inclination of the head in particular, from the beginning of labor, when dilatation is at a minimum.

L. Marshall ⁹⁹_{Feb. 4} describes a new, safe, and sure method of expediting difficult cases of labor. This consists in uterine pressure across the abdominal wall during the contractions. This pressure should correspond in intensity to that of the contraction, at first feeble, then increasing little by little, then gradually decreasing. Recourse should not be had to the procedure, however, until the cervix is completely dilated or dilatable.

Barton C. Hirst ¹¹²_{Feb.} describes an anomaly, hitherto undescribed, in the mechanism of labor in a face presentation. The membranes being ruptured, the uterus retracted on the fœtus. The chin retreated a little, the back being to the left and in advance, the abdomen slightly turned to the right side. Dilatation was nearly complete, yet labor did not proceed. Descent was impossible, the mento-occipital maximum diameter not being able to pass. It was necessary to deflect the head more or to turn it. Extension was prevented by pressure exerted by the right shoulder upon the occiput; and this shoulder could not be made to ascend, for it was fixed in position by the general immobility of the voluminous fœtus, which filled the uterine cavity. The occiput could slip neither in front nor behind the shoulder. Labor was thus arrested at the end of the first stage, and the woman died without being delivered.

Fraisse ¹⁶²_{Feb.} praises Dührssen's method and gives the following indications: 1. When the entire subvaginal portion of the neck is dilated. 2. When the insufficient dilatation is limited to the vaginal wall. Then, if it be necessary to dilate, two, three, up to six deep incisions should be made, extending up to the vaginal insertion, and the child immediately extracted. Without going as far as Dührssen, who makes incisions in all cases of delayed labor, not from necessity, but from choice, on account of its harmlessness in his hands, Fraisse thinks that it should be practiced more frequently, and that it will be the favorite operation of the future.

Spontaneous Evolution.—Ballantyne ³⁶_{Apr.} relates the case of a woman of 34 years, who, in her seventh confinement, was assisted by a midwife. The child presented itself by the shoulder. The labor lasted a long time, and a strong dose of ergot was administered. When the patient entered the Maternity of Vorcelli the child was found to be dead. The pelvis was normal. The accouchement ended by spontaneous evolution, without rupture of the perineum, of a dead child weighing 3400 grammes (7 pounds). The mother's recovery was without incident.

FUNIS.

Hæmorrhage.—L. Pons ¹⁸⁶_{Dec., '91} reports a case of umbilical hæmorrhage in the newborn. The nurse applied a second ligature and the hæmorrhage stopped, to recur the following day, causing

the death of the child before the arrival of the physician. The hæmorrhage occurred not at the extremity of the cord, as is generally the case, but at its union with the abdomen. Hermann⁹⁵_{B.40,H.2} records the presence of knots in the cord, in a case of twin pregnancy, due, in his opinion, to the violent movements of the mother, as in dancing and riding, and perhaps, also, to the vomiting of pregnancy. Knots in the cord are met with about five times in six thousand labors, and the prognosis is unfavorable for the child. Diagnosis is impossible during pregnancy. In a case of painless labor, described by Newth,¹⁸⁶_{Feb.} hæmorrhage of the cord followed in two successive births, though both times the cord was ligatured.

LEGAL ASPECTS OF LABOR.

Leblond³_{July 13} describes a case of unconscious accouchement. A woman of 24, being in labor some time before term, retired to the water-closet, and without any violent effort the child fell to the ground. She herself cut the cord. This case Leblond considers to have a certain medico-legal importance. J. B. Eagleson¹⁹²_{Sept.} reports the birth of a child while the mother was asleep. She was in the seventh month of pregnancy and suffered much from stomach disorders. Before going to bed she took a dose of castor-oil, after which she felt no more pain. On awaking, toward 3 o'clock in the morning, she felt something between her legs, which proved to be her child, born dead during her sleep. J. M. Barbour⁶_{Feb. 13} records a case of unusual mutilation in childbirth. The mother was a girl who was traveling alone in a railway compartment when labor suddenly began. She tried to deliver herself. An arm presented at the vulva. During extremely violent pain she cut off this member with a table-knife and threw it out of the door. A few minutes later she left the train and arrived within half a mile of her dwelling. A doctor was called, who extracted the child, which was well developed, but dead and altogether bloodless. The mother recovered. Barbour regards this as a new case not within the bounds of criminality, where mutilation took place before the child had left the maternal womb.

ANÆSTHETICS.

Ridgway Barker¹⁹_{May 21} asks "Does organic disease of the heart preclude the use of chloroform in parturition?" and replies to

the question by declaring chloroform to be the best of anæsthetics. What agent can replace it? It may be administered intermittently for a long time without danger, although it favors post-partum hæmorrhage. Examining the influence of chloroform administered during labor to a woman affected with heart disease, and supporting his argument by such names as Snow, Championnière, Vergely, and Macdonald, Barker concludes that chloroform, properly administered, can and should save the life of lying-in women affected by heart disease, even if death appear imminent from the overwork of that organ, overwork of reflex origin. Not only is chloroform not to be rejected in these cases, but, on the contrary, it is strongly indicated. G. R. Butler ¹⁵⁷_{Dec., '91} rejects cocaine and ether, considering chloroform a better and much more practical agent where the heart is affected. If administered in surgical dose during the third period of labor, the anæsthesia thus obtained is prolonged. The effects last quite a while after administration, which gives time to perform perineorrhaphy, if necessary. Heart disease is no contra-indication, all depending on the cardiac muscle. In the discussion which followed this communication, the following question was asked: If, the woman being still under the influence of chloroform administered as Butler indicates, perineorrhaphy be immediately performed, how can delivery be effected, and what will be its influence on the operation, especially if artificial delivery be necessary?

MULTIPLE PREGNANCY.

M. Eames ²_{Mar.} relates a case of forceps labor with first child living, expulsion of placenta, and protrusion of arm of second fœtus. Version was tried, but the internal orifice was contracted on the arm and it was impossible to pass even the finger. Administration of chloral and chloroform led to relaxation sufficient to allow the cord to descend. The beatings ceased. The child being dead, nature was allowed to take its course. Two features are worthy of note in connection with this case, viz.: 1. The rarity of hour-glass contraction, especially interpartum. 2. The presence of a deep furrow on the arm of the second child, indicating the intensity and duration of this rare form of contraction.

O'Reilly ¹³²_{Apr.} reports an unusual case of twins. The patient, a IV-para, had felt no movement of child for ten days. She was

delivered of an eighth month fœtus, macerated, without the second fœtus being perceived. Labor being arrested, ergot was administered, when a violent contraction followed and a living child was expelled. Haushalter and Schuhl²³⁶_{Dec., '91} relate a case of twin pregnancy in a syphilitic primipara, in which there was papyraceous transformation of one of the fœtuses and corresponding atrophy of the placenta.

Raether³¹⁷_{Nov. 14, '91} describes a case of an acardiac twin resembling a pedunculated fibroid. The mother was a primipara, with contracted pelvis. Craniotomy and extraction of first fœtus, macerated, was followed by expulsion of placenta, the cord of which was also macerated. The abdomen remained large, and a round body is felt in the uterus, giving the sensation of a pedunculated fibroma the size of a child's head. Raether used the cyst-forceps, and, after having passed an hour in sufficiently dilating the vagina and the cervix, he succeeded in extracting the tumor, which was recognized as acardiac anencephalus, with a spherical body, of which the members were reduced to two tubercles with broad, œdematous thighs.

C. W. Townsend⁹⁹_{Jan.} reports a case of twins. The first child presented by the foot; the second was a deflected occipito-posterior presentation. It was impossible to turn the head with the hand. The patient was given ether, and Townsend, having introduced his hand, found the two hands of the child pressed against the chin, preventing version. He raised them, turned the head and caused it to make rotation, and by application of the forceps to the vulva extracted a living child. The two children weighed $6\frac{1}{2}$ and 7 pounds (3.25 and 3.50 kilogrammes), respectively.

A. J. Horton²_{Apr. 9} was called to a woman in her second confinement. He found her lying on the floor, and between the legs the posterior portion of a decomposed fœtus, half expelled and giving forth a bad odor. He extracted this macerated fœtus, had the patient put on a bed, ruptured the membranes of a second fœtus, and, finding a face presentation, made version and extracted a full-term, living child. The mother recovered. The woman had a fall six weeks before, which was not followed by hæmorrhage, though she experienced violent pain.

O. Irvin¹⁹⁹_{Jan.} gives the history of a woman, who was delivered of four girls, each weighing about $2\frac{1}{2}$ pounds (1 kilogramme).

There was one double placenta and two single. Mother and children did well.

F. N. Williams ⁶_{May} describes a case of double uterus, in which double pregnancy took place and was not diagnosed. Forceps were applied to the head of the first child, which was extracted with difficulty. By touch, the head of the second child was felt, and the expectant plan was followed. The woman remaining an hour without real labor-pains, ergot was administered and extraction of second child made with forceps, without difficulty. On examination a double uterus was found. The most interesting point in this case was the difference in the maturity and size of the children,—two boys. The first weighed more than 7 pounds (3.5 kilogrammes); the second, in which the membranes were with difficulty ruptured, owing to the small quantity of amniotic liquid, only weighed 6 pounds (3 kilogrammes), and was certainly not completely developed.

PLACENTA.

A case is described by Gottschalk, ³¹⁷_{No. 16} of a woman, in her eighth confinement, who gave birth, unassisted, to a child weighing 9 pounds (4 kilogrammes). The placenta was extracted by Crédé's method. It was composed of two distinct masses, both large, each having a distinct vascular net-work, the two masses touching only at one point. The velamentous cord was attached to the membranes, equidistant from the placenta, its vessels being divided into two branches, one for each placenta.

Maygrier ¹⁹⁴_{Apr.} speaks of a placenta weighing 680 grammes (22 ounces), which presented, at the level of the cord, ectasia of the umbilical vein, the size of a pigeon's egg. The child, at birth, weighed but 1780 grammes (59 ounces). Maygrier concludes that the evident disproportion between the foetus and the placenta—the former weighing only 680 grammes, and the latter having the volume and dimensions of a full-term placenta—is important, from a medico-legal point of view. The foetus, although small, was living, and presented appearances characteristic of maturity, as, for example, ossification of the cranium. The exact period of the pregnancy being determined, it may be asked if the child was not more mature than its weight would indicate. It has suffered in no way since its birth, nursing vigorously and increasing in weight each day; and, from these facts, Maygrier doubts if there

be not reason to think that the development of the foetus may have been retarded by impeded circulation due to the venous ectasia in the umbilical vein. The hypothesis appears to him very probable.

F. Broadbent ²_{Dec. 19, '91} records a case of labor, with left occipitopiliac presentation, in which the head became disengaged two hours after the rupture of the membranes, but the shoulders did not present for some time. This delay was due to the fact that the placenta was being pushed before them, coming first. There was no hæmorrhage at any time, but the child was born dead. The author thinks that the placenta must have been inserted on the inferior segment, and that the shoulders pushed it out before them in their passage.

Adherent and Retained Placenta.—Avelino Barrena ²¹⁵¹_{Nov.}; 459 states that in retention of the placenta at term it should be extracted by traction and expression, and, in difficult cases where there is adherence, by artificial delivery or fragmentation. Cavilan ²³⁶_{Mar.} considers atmospheric pressure useful in many cases, it being only necessary to perforate the placental mass in such a way as to allow the air to penetrate between the uterine walls and the placenta, when the after-birth will descend of itself into the vagina.

V. Béjan ²²³_{No. 3} reports an interesting case of retention of the placenta in twin pregnancy, with extraction eight days later, and recovery. The woman was 35 years old, and in her sixth confinement. Labor lasted three days. The first child was born dead, and the following day the second child was also born dead. Hæmorrhage was very great, syncope occurring twice. The patient was assisted by an old woman. The placenta was not expelled. A doctor, called in eight days later, sent the patient to the Maternité. The lochia was very fetid; the spleen hypertrophied, with symptoms of infection. The uterine neck was still open, completely soft, and dilatable. Intra-uterine injection of sublimate was made with Budin's probe, and Béjan introduced one hand into the uterus, while making expression with the other. The placenta—500 grammes (17 ounces)—was removed soft and putrefied. Sublimate injections were used, and the patient left cured fifteen days later. The important feature in this case is the retention for eight days of a decomposed placenta and the limited infection. The absence of infection from without was no doubt due to the fact that the midwife did not explore the vagina or

make injections, which is preferable to injections and explorations made without antiseptic precautions. In some cases puerperal fever, often fatal, ensues after the most rigid antiseptic measures; while in others, as in this woman, no bad results follow retention of a decomposed placenta for eight days, without any efforts at cleanliness. It indicates either singular caprice on the part of the microbes or singular power of resistance in certain patients. Llewellyn Elliott¹⁰⁰³_{Mar.} does not believe in the absorption of the placenta, although rare cases have been reported. When the after-birth is adherent, artificial delivery must be effected as much as possible with the hands, failure in this only warranting the use of the curette.

F. Kuhn⁷²_{July} reports the case of a woman of 33, very strong, in whose first confinement a fine child was born. After twenty minutes, delivery not being effected, he gave her ergot, waited half an hour, then gave another dose. He then endeavored to extract the placenta by Cr  d  's method, but in vain. He introduced his hand into the uterus, found the placenta in its place, adherent, and tried to remove it. As it was only attached by the edges, a large quantity of blood accumulated behind it escaped like a torrent when one portion of the edge was detached, and only a part of the middle could be removed. A second trial was not more successful. He then tried plugging. After a short period of repose and the administration of another dose of ergot, he took away the plugs and the clots of blood and made fresh efforts to extract the after-birth, but without success. He called in another physician, who also failed to remove it. The uterus and vagina were plugged with iodoform gauze, and the patient remained thus two days, losing blood, when the tampon was removed and again inserted, the placenta being putrefied. Finally, in spite of every effort to remove it, even with the curette, the patient died of septic  mia. All antiseptic precautions had been taken.

F. Britto²³⁹_{Aug.1} describes the case of a woman with h  morrhage, to whom he was called after a considerable loss of blood. By digital examination of a cervix which permitted the finger to pass, he discovered a placenta, and effected gradual dilatation by means of the fingers, extracting the after-birth in pieces. Abundant h  morrhage followed, and Britto used the curette, and afterward warm intra-uterine injections. The h  morrhage ceased.

PLACENTA PRÆVIA.

Ahlfeld ³¹⁷_{No. 12} reports a case showing that the ovum may be inserted primarily on the inferior segment of the uterus, and that in this situation the placenta extends toward the internal orifice. Schwartz ²_{Jan. 16} ³¹⁷_{Dec. 26} cites several cases of placenta in bicornate uteri.

Runge ⁹⁵_{B 46, H. 1, 2} describes a case of total placenta prævia at term, with death of the mother from acute anæmia, following mixed version by the Braxton Hicks method. O. Mackness ³⁶_{Apr.} also reports an interesting case of placenta prævia, as does I. B. Gregory. ⁴¹_{June} The latter patient was a IV-para, 32 years old. The first labor was terminated with forceps at the end of four days. At each confinement the adherent placenta was removed with difficulty. The third labor lasted five and a half days, and ended ten minutes after rupture of membranes. During this time quinine and ergot had been administered. Although the placenta was adherent, there was no hæmorrhage. The child was dead. During the fourth pregnancy, hæmorrhage occurred in the course of a journey. Absolute repose and viburnum were prescribed. On examination, a breech presentation was transformed to a vertex by external manœuvres. At the end of a week hæmorrhage occurred, which was controlled by plugging. A Barnes bag was introduced after the placenta had been detached from around the uterine orifice. When the dilatation was sufficient, mixed version caused the lowering of one foot, then the other. During the time of operation, ergot was given by subcutaneous injections and by mouth. Nature still not acting, the child was extracted with much difficulty, the forceps being applied to the after-coming head. Considerable hæmorrhage followed. A portion of the placenta was very adherent, and required considerable time for its removal. Warm intra-uterine injections were of no avail; the application of a tampon steeped in vinegar yielded no better result. Monsel's solution arrested the hæmorrhage. Violent contraction, lasting two hours, was followed by such relaxation that inversion was feared. No care was taken to revive the child, the mother having absorbed the entire attention of the writer. Complete recovery followed.

Budin ⁷³_{Apr. 30} states that the examination of the after-birth after accouchement generally permits a diagnosis of placenta prævia. If the placenta be inserted at the fundus of the uterus, as the opening of the ovum usually corresponds to the uterine orifice, there is

a considerable distance between this opening and the edge of the placenta. If, on the contrary, the placenta be inserted on the inferior segment, the rupture of the membranes occurs near the edge of the placenta, or even at the edge. It is necessary, however, to determine this. For example, let us suppose the placenta to be inserted on the posterior wall, at eight or ten centimetres from the uterine orifice. If the rupture take place straight from the front to back,—that is, perpendicularly to the edge of the placenta,—it will end near that organ, and there will be no or almost no interval between the extremity of this rupture and the placenta. If, on the contrary, the rupture be produced from right to left,—that is, parallel to the placental edge,—it will remain at a certain distance from the cotyledon, and a noticeable fragment of membrane will persist between the rupture and the placenta. It is easy to demonstrate this on the convex surface of an egg or on a larger sphere. Where the placenta is found inserted near the uterine surface, if the rupture be perpendicular to the placental edge, it will touch the cotyledon; if it be perpendicular to the edge of the placenta, a membranous band, more or less narrow, may remain between the opening of the ovum and the edge of the placenta. The rupture may be oblique, resembling, more or less, the rupture perpendicular, parallel to the edge of the placenta. Budin thinks, therefore, that in forming a retrospective diagnosis of placenta prævia from examination of the after-birth, the direction of the rupture of the membranes should be studied.

Tissier ⁷³_{Apr.30} relates a case of premature hæmorrhage in a case of placenta prævia. A XII-para, from the first weeks of pregnancy, had hæmorrhages which only ceased at the moment of lying-in, at the end of the eighth month. These persistent hæmorrhages were characterized by painful contractions. Although these symptoms were hardly in accord with the probability of vicious insertion, nevertheless the case was one of partial placenta prævia, its interest lying in the early appearance of hæmorrhage. Putting aside abortions attributed to probable vicious insertions (from the relatively large development of the placenta in the first months), classical authors quote, as extraordinary, placenta prævia manifested from the fifth month, or even from the fourth or third. Here, the first manifestations of hæmorrhage occurred with the

commencement of pregnancy, and persisted, without ceasing, up to the end. This anomaly, added to that of painful contractions, was unique, and sufficient to obscure the diagnosis.

J. A. Springle²⁸²_{Feb.} reports a case of placenta prævia centralis, in a VI-para of 36 years. Profuse and repeated hæmorrhage occurred in seventh month of pregnancy. On examination, the cervix was found to be torn on one side, dilated, and the placenta above. Absolute rest was prescribed and the woman improved; she got out of bed and walked, whereupon fresh profuse hæmorrhage ensued. Manual dilatation of the cervix was performed, the placenta detached, the membranes ruptured, and version effected. Mother and child were saved. Examination of placenta clearly showed that it was of the central variety. Wilmer Brinton¹⁰⁴_{Jan.} details a case of twin pregnancy, complicated by placenta prævia centralis, in a II-para. After seven and a half months of pregnancy, hæmorrhage occurred. In the eighth month she had much pain, followed by profuse hæmorrhage. Examination showed clots in the vagina, cervix rather dilated and soft, the placenta being felt. A few days later there was fresh, profuse hæmorrhage, and a diagnosis of placenta prævia was made. Chloroform was given to the patient and the hand introduced into the vagina with some difficulty. The membranes were ruptured and version performed, when Brinton found that there were two children, the second one presenting by the shoulder, dorso-anteriorly, the head being to the left. A second version and rapid artificial delivery was performed, followed by warm injections. The cervix was torn in two places, proving that it was not completely dilated at the time of intervention. In spite of the quantity of blood lost the woman recovered, though phlegmasia alba dolens occurred on the eighth day. The children, who seemed well, died in seven hours. The author thinks that, in cases of placenta prævia, active intervention is advisable where possible.

Malcolm Black²¹³_{Apr. 27} reports six cases of placenta prævia, five of which were in multipara, three being placenta centralis. One woman died and four children lived. Black recommends Barnes's treatment: separation of the portion of the placenta which it is possible to tear off with the fingers, use of Barnes's bag to obtain the necessary dilatation, then version. If there be collapse, he allows the breech to occlude the inferior segment and does not

hasten delivery. If comparatively slight hæmorrhage arise two months, at most, before term, he advises waiting; if later, labor should be provoked. When the hæmorrhages are abundant and repeated, whatever the stage of pregnancy, labor should be provoked. A. Vivien²⁰⁰⁷ discusses the treatment of post-partum hæmorrhage following vicious insertion of the placenta, and endeavors to show that the only rational treatment on which one can rely is that of intra-uterine tamponing, as advocated by Dürrssen and Auvard, and which appears to have given excellent results.

J. Gilroy^{May 14}⁶ had the case of a young woman in whom the hæmorrhage, especially during the latter part of pregnancy, was considerable. Artificial dilatation and version were performed, and the child lived seven days, while the mother recovered. In a case described by Clopatofsky,^{Feb. 18}¹⁹⁴ there was hæmorrhage at time of dilatation. The membranes were ruptured and the hæmorrhage ceased. Delivery was rather difficult, and, on examination, it was found that the adherence was caused by calcareous degeneration, of which a part appeared to remain on the uterine tissue.

Arch. Donald^{June}⁵⁹ gives a summary of twenty-seven cases of placenta prævia, discussing the frequency of this complication, its mortality to mother and child, and the accidents which may arise from it. As regards the treatment, he considers it desirable to bring the labor to a speedy termination, making the fœtus act as a tampon. He rejects Barnes's idea of separating the detached placenta to arrest hæmorrhage. He thinks that the reason why post-partum hæmorrhage is so frequent in vicious insertion is because the inferior segment remains flabby while the body of the uterus is strongly retracted. If the cervix allow of the passage of two fingers, bipolar version must be made to cause a foot to present itself. If dilatation be complete, version or forceps may be employed. When a foot is in the vagina labor must not be left to nature alone, for, in case of inertia, the breech no longer acting as a tampon, a considerable internal hæmorrhage would be produced, as Donald illustrates by a case. If the cervix be not dilated enough to allow of version, and there be hæmorrhage, recourse must be had to dilators. Sometimes the cervix is rigid; but even then the author prefers digital dilatation. Barnes's bags are not of much service. Donald distrusts the tampon, many deaths being attributed to it. It is, perhaps, of

some service when the cervix is not much dilated, but its risks counterbalance its advantages. He advises rigorous antiseptics; intra-uterine injections of hot water, with the addition of tincture of iodine, which stimulates the uterus; subcutaneous injections of ether, and transfusion in grave cases. His experience has shown him that premature labor is not to be recommended, as death of the mother often follows. The uterus not being apt to contract before full term, post-partum hæmorrhage is more considerable than in ordinary cases.

Berry Hart ²¹⁵²_{Sept.} demonstrates that no fixed rule can be established in the treatment of placenta prævia, but that it must be determined by circumstances. He gives the following advice: 1. Rupture the amniotic sac, which facilitates uterine contraction. 2. Apply a firm bandage on the abdomen of the woman. 3. Introduce, if needed, a tampon, to gain time while carefully watching the patient. 4. Detach the part of the placenta adherent to the inferior segment of the uterus; if there be no hæmorrhage, wait, as the labor will perhaps be produced normally; in the contrary case, dilate the cervix by means of the hydrostatic dilator. Wait again, always watching the patient. If the natural forces appear to fail, have recourse to the forceps, which gives more chance to the child. As a last resort, practice version. 5. Avoid all tendency to septicæmia: contusion or bruising of the tissues; retention of *débris* of placenta in uterus, membranes or clots; want of contractions of uterus, etc.; all predisposing factors whose influence may be advantageously combated and reduced to the minimum by a rigorous application of therapeutic principles.

Furthermore, there are still certain special precautions to take. After delivery the placenta must be examined carefully, to see if it be entire. If the uterus do not contract well, and especially if blood still flow, hot water must be injected (45° C.—113° F.), a little iodine or carbolic acid being added; or, if there be persistent hæmorrhage, perchloride of iron. It would also be well to repeat the uterine injections every day for a week, and for the patient to follow an analeptic regimen.

C. M. Green ⁹⁹_{p.551} reports a case of placenta prævia complicated with uræmia and impending eclampsia; and C. W. Townsend ⁹⁹_{p.550} a case of placenta prævia and uræmia in the same patient. The first case was in a woman of 32, pregnant six and one-half

months. She had hæmorrhage and pains, besides all the symptoms of uræmia. Fearing eclampsia, ether was administered, the cervix dilated, and in a quarter of an hour the placenta was partly detached on the left side; considerable hæmorrhage took place in completing the dilatation. Version was performed, and a dead fœtus of six and one-half months was extracted. The patient was treated with pilocarpine, alcohol, and heat. Recovery ensued. The second case was in a primipara, 39 years old, almost at term. There was abundant loss of blood, and pains. Placenta prævia being found, a tampon was applied. The uræmic troubles increased, and albumen appeared in the urine. The tampon was removed on the following day, and pilocarpine administered. Eight days later a fresh hæmorrhage occurred, which was treated with morphia and a tampon applied. The following day there was complete placenta prævia, the cervix was dilated, and there was no hæmorrhage. Grave symptoms of uræmia appearing, the patient was etherized, the cervix was artificially dilated, version performed, and the child extracted. It was asphyxiated, but was revived. The mother recovered.

J. Maddox⁵⁴⁷_{May} relates a case of placenta prævia with syncope, which he considers the remedy of nature against hæmorrhage, giving time for the employment of other means by the physician. He had two cases of placenta centralis, in which both mother and child were saved. Roderick Dew¹⁹⁹_{Mar.} employed the tampon in a case of placenta prævia with prolapse of the cord. The child died, but the mother recovered.

DETACHMENT OF THE PLACENTA.

Graefe³¹⁷_{No.12} studies the symptomatology, diagnosis, prognosis, and treatment of this condition, which was formerly attributed to traumatism, and, later, to an alteration in the placenta. The author has seen a case due to shortness of the cord. Treatment depends upon the amount of hæmorrhage present.

Desprez²³⁶_{Jan.} describes a case in a woman, in the eighth month of pregnancy, who suddenly suffered from considerable hæmorrhage. A physician who was called in did not consider the case one of placenta prævia. The patient was delivered of a fœtus intact. The cord was found twisted about the left leg of the fœtus, which had been dead but a short time. Desprez attributes the hæmor-

rhage to the fact that the child, in making a sudden movement, pulled upon the cord, detaching the placenta. The hæmorrhage did not continue, as the fœtus served as a tampon. (We know of cases of detachment of the placenta where the ovum was intact, but where the mother died from hæmorrhage.) Mdle. de Forin²⁰⁰⁷ contributes a study of premature detachment of the placenta where the latter is normally inserted. Among the causes are albuminuria, frequent labors, etc. The symptomatology is such that, having once seen a case, the physician is not likely to forget it. As to treatment, she considers it best to empty the uterus. If there be no dilatation, the membranes should never be ruptured,—the mortality from this measure being 61.7 in 100. If the general condition of the patient be not too precarious, the vagina should be tamponed (the mortality of this procedure being 1 in 9). If it be necessary to act quickly, the cervix should be dilated with a Barnes bag, or that of Tarnier or Champetier. If danger be imminent, the cervix should be incised as far as the *cul-de-sac* (Dührssen, Tarnier); and if the child be living, version or the forceps should be then employed; but if it be dead, basiotripsy is indicated.

POST-PARTUM HÆMORRHAGE.

W. P. Manton, of Detroit,^{1003 June} praises the method of Crédé in the management of labor. In five hundred and fifty-six cases he had only two cases of post-partum hæmorrhage. J. Glenn^{6 Apr.} reports a case of hæmorrhage following rupture of the posterior wall of the vagina and the cervix. Tampons of iodoform gauze were applied, and the patient recovered. J. W. Byers^{22 Aug. 17} does not consider chloroform a cause of post-partum hæmorrhage, which occurs quite as frequently in cases in which it is not employed as in those in which it is. The treatment of this complication is a matter of considerable discussion. A. Philip^{22 July 20} praises an apparatus made of rubber, which is filled with liquid and introduced into the uterus when there is inertia. It acts as a tampon, and also stimulates the contractions. II. Spencer^{6 June 11} reports eight cases of hæmorrhage following placenta prævia and post-partum hæmorrhage, with four deaths and four recoveries. He attributes the recoveries to intra-venous injections of normal salt solution. Rainsford^{6 June 18} regards these injections as of little value, preferring rectal injections. Alf. Ortiz^{179 Feb. 15} praises the elastic tampon, and endeavors to show its

advantages over the method of Dührssen, so much praised as a hæmostatic measure. D. Thomas, of Pittsburgh, ¹³⁹June makes use of a clean handkerchief or napkin dipped in vinegar, which he wraps about his hand and introduces into the uterus. He has always succeeded in controlling the hæmorrhage.

Stahéli, of Bern, ³¹⁷No. 21 in five thousand four hundred and twenty-four labors, had only nine cases of death from post-partum hæmorrhage, and thinks that the obstetrician who has with him a tampon of iodoform gauze need never see a woman die in his hands. In cases of inertia, having applied the tampon, he can leave his patient without fearing a second hæmorrhage. It must not be used as a last resort, but should be applied when ordinary measures have failed, and before the patient has lost much blood. J. Blume ¹³⁹June has also had success by the use of this tampon. Meisels, of Budapest, ¹³²Feb. finds that cornutin, one of the active principles of ergot, is of great service in post-partum hæmorrhage. The dose is 0.02 gramme ($\frac{2}{7}$ grain) daily.

HÆMORRHAGE OF DELIVERY.

Grynfelt ²³⁶July describes a case of hæmorrhage immediately following the expulsion of the placenta. He had recourse successively to frictions with the hand introduced within the uterus, subcutaneous injections of ergotinine, hot injections (45° C.—113° F.), injections of ether, of alcohol, and compression of the aorta for twenty-five minutes. The hæmorrhage did not cease, however, until an intra-uterine tampon was applied. This was left in place for forty-eight hours. On the tenth day the temperature was 38° C. (100.4° F.). Several clots of blood were expelled, and the lochia was somewhat fetid. An intra-uterine injection of a 2-per-cent. carbolic-acid solution was given, and a fibroma of the cervix was discovered, which was enucleated. The patient recovered.

FŒTAL DYSTOCIA.

W. H. Wenning ¹⁰⁰³Feb. considers the manual rectifications of malpositions in labor, and the advantages of the forceps in certain cases where deflection of the head, version, and extraction are necessary. However, there are instances in which one may substitute the hand, a far more delicate instrument, viz., (1) to convert an occipito-posterior into an occipito-anterior position; (2) to change a

face into a vertex presentation ; (3) to change a mento-posterior into a mento-anterior presentation ; (4) to correct deficient flexion or extension. He insists, above all, upon its value in turning the head in order to extract by deflection. If flexion be wanting, a hand in the vagina serves to turn the head during the contractions. If the head be arrested by the perineal floor, two fingers introduced into the rectum grasp the chin, thus turning the head in the interval of contractions. These rectal manœuvres have been successful in his cases and are devoid of danger.

E. P. Davis ⁸⁰⁴_{July 2} describes the treatment of posterior rotation of the occiput during labor. If the patient be seen early enough, and the pelvis be contracted, premature labor should be induced. During labor the head should be turned with the hand, with the aid of forceps if necessary. If the contractions be too feeble, they should be stimulated. If the perineal floor be a source of resistance, chloroform should be administered ; and, as a last resort, the forceps should be used.

McNeil ²_{July} describes a case of brow and foot presentation in which there was rigidity of the lower limbs. The patient was a primipara, and, though dilatation was complete, the head did not descend. The membranes were ruptured, when the toes of the rigid feet were felt, which explained the delay. Pressure was made upon the feet through the abdominal wall, while at the same time ergot was administered. Strong contractions ensued, and the head gradually descended, following the sacral curve. Soon the forehead, the face, and the feet were expelled, and under the influence of another contraction the body of the child appeared, doubled in two. The lower members were rigid, the articulations seeming to be completely ankylosed. A large hæmatoma, purple in color, simulating a spina bifida, was found upon the lumbar vertebra, indicating a recent spinal meningitis.

Pollosson ⁴⁸_{Mar.} discusses the mechanism of labor in brow presentations. Blanc and Mangiagalli admit that in these presentations it is the chin which first becomes engaged in the superior strait, and, in order that the occiput may descend and the head rotate, the chin rises the length of the pelvic wall and frees itself above the superior strait, while the occiput, by an inverse movement, escapes. "Even before the points mentioned have slipped under the innominate arch, the chin has mounted and is free." In the

first two labors in forehead presentations the extremity of the chin descends first, and in the third labor the occiput. Pollosson believes that the chin cannot return to the superior strait unless the occiput also ascends, unless at the same time the occipito-mental diameter passes into the hollow, which Blanc does not admit. But if the head thus rises, the condition of things is exactly the same as before, the brow would again descend, and the occipital point of the occipito-mental diameter would be in advance. According to Pollosson, the maximum diameter is insinuated into the hollow of the pelvis at such an angle that the extremity of the chin is the last to pass. Pollosson speaks of cases in which rotation is made apparently about the intra-buccal point, the child seeming to bite the symphysis pubis. The chin frees itself last, rendering delivery easier (Budin, Fochier).

J. Koeser³¹⁷_{No.2} states that prolapse of the extremities in head presentations is a complication most frequent in multiparæ, and is favored by hydramnios, narrowness of the pelvis, and by twin pregnancy. Prolapse of the arms is less serious than that of the legs. If the membranes are intact, it is best to wait for complete dilatation, when the prolapsed members may be placed and the head engaged by exterior pressure. If the membranes are ruptured, the member must be replaced if possible; but if not, and the head is mobile, version must be practiced. If the head is not mobile reduction must be attempted in the intervals of the contractions, and if not successful recourse must be had to the forceps or to perforation. Faucon²²⁰_{Oct.7} reports an interesting case of dystocia from multiple causes. Prolongation of the pregnancy permitted the fœtus to acquire the rare weight of $11\frac{1}{2}$ pounds (5 kilogrammes). At the moment of labor the trunk presented dorso-posteriorly by acromioliac process of left shoulder; narrowness of pubis necessitated the use of forceps in four previous confinements, the last of which had occurred five years before. J. B. Harris⁶_{July 20} delivered a child weighing 14 pounds (6.8 kilogrammes). The head was easily disengaged, but there were great difficulties in the passage of the trunk, the child dying during delivery. Th. Hill¹³_{Dec., 91} reports the case of a woman who gave birth to a child weighing 15 pounds (7 kilogrammes), extracted by the forceps. Mother and child both did well. O. Hopkinson⁹_{Aug.6} describes a case of labor complicated by congenital hydrocephalus. The child presented itself by the

breech, and it was impossible to extract the head, which was arrested in the superior strait. The forceps were used, as Hopkinson did not discover the presence of hydrocephalus, and detrunca-tion performed, the head being easily extracted with the forceps. The author concludes that the diagnosis of hydrocephalus is not so easy as the books would have us believe. Ballantyne ³⁶_{Apr.} reports a case of difficult labor due to general œdema of the fœtus. Child presented itself by breech; amniotic liquid rather in excess; feet and legs œdematous. Abdomen of fœtus was opened with scissors, giving issue to liquid. The trunk was extracted by the neck, the head remaining in the uterus. It was easily extracted after having been crushed. The mother died on the tenth day, from puerperal infection and vulvar diphtheria. Ballantyne thinks the general-ized œdema of the fœtus was caused by obstruction of liver and kidneys, which also explained the ascites and hydramnios.

Bagot ¹⁶_{Jan.} saw a case of dystocia due to a cyst in the liver of the fœtus. It was impossible to disengage the trunk after the head had presented. The abdomen was perforated with Smellie's scissors. At the autopsy a cyst of the left lobe of the liver was found. From appearances the mother was syphilitic. A. L. Saylor ¹⁹⁹_{Jan.} reports a case in which the fœtal head could not clear the vulvar ring. It was seen to make a forward movement at each contraction; then it receded. Finally it disengaged itself, and the cord was found rolled twice round the neck. Ballantyne ³⁶_{Apr.} had a case of complicated labor. A primipara of 21 showed œdema of the face and extremities due to nephritis. The membranes were ruptured, yet labor did not advance, and eclampsia was threatened. Through the partly-dilated cervix a slightly fluctuating tumor was felt. A convulsion taking place, the forceps were applied with difficulty, and a breech was extracted to which a tumor was appended. Profuse hæmorrhage followed, and artificial delivery was resorted to. The tumor, larger than the head of a child, was composed of multilocular cysts containing fat and a gelatinous substance.

MATERNAL DYSTOCIA.

Cuthbertson Walker ²_{Apr. 23} describes a case of labor obstructed by the hymen. A primipara aged 22 was in labor, the head of the child considerably distending the perineum without power to clear the vulva. On examination the hymen was found resistant, abso-

lutely covering the fœtal part. While making the incision, the child was suddenly precipitated outside, tearing the perineum. Playfair states that these cases are rare. Ahlfeld³⁹³_{B.22,II.1} reports two similar cases. The first case, a woman of 24 years, presented a very resistant hymen. The orifice was found at the left, allowing the passage of a probe five millimetres thick. In the second case a woman of 32 years was in labor, and suffering violent pains. At the entrance of the vaginal orifice a tumor was formed by the hymen, the orifice being about five millimetres, against which rested the amniotic sac. The hymen was incised, abundant hæmorrhage following, which was restrained by a tampon of iodoform gauze. Legheyron²²¹_{Mar.} discusses folds of the vagina complicating child-birth. Generally, in multiparæ, the posterior wall of the vagina is loose and slips before the fœtal head, which presses it forward until it forms a real septum, with an orifice in its centre which may occlude the dilated cervix. The diagnosis of this condition needs little attention, while the treatment indicated is manual dilatation. Puech²³⁶_{Mar.} observed a cyst of the vagina complicating labor, the latter proceeding easily after puncture of the cyst. Battu-Brain⁶_{Nov.} was called to a woman in labor, and was unable to find the cervix. He diagnosed vertex presentation, and waited for nature to act. Three hours later the condition remained the same. He endeavored to rupture the membranes, which resisted both the thumb and the perforator. No liquid flowed, but the finger came out stained with meconium and blood. The true diagnosis—presentation of breech and occlusion of uterine orifice—was then made, and a small incision led first to rapid, then to slow, dilatation. The child was extracted by the feet, and was dead. L. Nash⁶_{Jan.30} records a case of the same kind in a multipara. On examination there was no trace of cervix or orifice, a small depression seeming to be the uterine opening. The pains, although intense, led to no dilatation. On rubbing with the nail the tissues yielded, and a little hæmorrhage ensued when the membranes were found. Dilatation was slow, because of the cicatricial tissue. When the head was located the membranes were ruptured, the cervix dilated with the fingers, and labor terminated by application of the forceps. The child was alive.

Démelin⁷³_{Apr.30} observed retraction of the cervix as a cause of dystocia. Accoucheurs of olden times observed what they called

the internal orifice of the cervix sometimes retracted during accouchement. What we to-day call hour-glass contraction may be observed: 1. During delivery, encysted placenta being sometimes the consequence. 2. During the period of expulsion a part of the fœtus (as the neck, whether the head come first or last) is encircled by a spasmodically contracted ring, which is none other than Bandl's ring. 3. Even before this period of expulsion the spasm imprisons the fœtus entirely above this ring. The author has collected two cases belonging to the third category, which may be briefly described as follows: 1. Cachectic multipara, eighth month of pregnancy; induced accouchement; contractions at first regular and strong; membranes ruptured when dilatation was almost complete, when the pains ceased completely; twelve hours passed, at the end of which the fœtal pulsations were modified. By palpation the vertex was found high up, the neck turned round, an elastic external orifice, and very long cervical canal. About eight or nine centimetres above the external orifice a thick ring, circumscribing an orifice as large as a five-franc piece, was found. The contact of the hand with the internal surface of the cervix and inferior segment brought on the pains again; in their intervals the orifice yielded to pressure of the hand. Forceps were applied; the pelvis allowed the head to pass, but the retracted ring resisted and the entire uterus was dragged down. The child having succumbed, labor was terminated by basiotripsy, to avoid uterine rupture. Recovery. 2. Neglected presentation by shoulder. After spontaneous rupture of the bag of waters the contraction ceased completely, the cervix again closing some distance above the external orifice. A ring was felt, spasmodically contracted, as in the first case, and above this ring the fœtus. Version was impossible. Embryotomy was performed, with good results. Thus, in these two cases, the uterine contractions, at first regular, led to dilatation of the cervix and rupture of the membranes. The fœtal part not descending into the cavity, the cervix retracted, the inferior segment also retracted, and Bandl's ring closed round below the fœtus. From this moment labor was completely suspended. In diagnosis, this form of spasm, accompanied by elevation of the fœtal part soon followed by uterine inertia, would cause one to suspect rupture of the uterus. The prognosis is grave for both child and mother, as intervention is difficult, because of

the height of the fœtus and the narrowness of the orifice of the ring. The absence of uterine contractions when the inferior segment is empty and their recurrence on contact seem to prove that the inferior segment is one of the points of departure of the reflex which calls the uterine muscle into action. A certain number of phenomena, formerly localized at the level of the internal orifice, in reality have their seat in the upper part of the cervico-uterine canal; that is to say, at the level of Bandl's ring.

Blanc ²¹²_{May 25} relates a case of syphilitic rigidity of the cervix. The patient had had two normal labors. The third time it was very difficult to dilate the cervix. There was a sclerous area on the anterior portion of the vagina and cervix. The author made use of lateral incisions and the forceps. The husband was syphilitic, and Blanc considers his diagnosis as certain. G. Etienne ²³⁶_{Mar.} speaks of swelling of the anterior lip of the cervix uteri as a cause of tardy labor, and advises pushing back the cervix above the fœtal head in the interval of the contractions. Runge ⁹⁵_{B. 41, H. 1, 2} observed a case of pregnancy where there was complete occlusion of the uterine orifice following amputation of the vaginal part of the cervix and the use of the hot iron. Incision of the cicatrix and craniotomy was followed by the recovery of the mother. E. Reynolds ⁹⁹_{Feb. 11} reports two cases of labor complicated by prolapsed tumors. The first case was that of a woman who suffered from pains in the abdomen, and who had previously been delivered at seven months, when the abdomen was as large as at term. On examination at the second labor, an elastic tumor was felt in the pelvic cavity between the vagina and rectum. The cervix was pushed back above the symphysis pubis, between which and the tumor a finger could be passed. Slightly mobile, the tumor had the consistency of a greatly-distended cyst. Reynolds employed taxis several times, under ether. Finally, the tumor ascended sufficiently to permit the hand to pass. Finding the cervix dilatable, Reynolds performed version. The child, which weighed $4\frac{1}{2}$ pounds, was alive, but died several hours after. After the child was extracted the tumor could no longer be felt, and it was supposed to have been a cyst which had ruptured. However, the woman had a high temperature in the evening and was nervous. Some days later she complained of pain in the right iliac fossa, and a resisting mass, hardly to be defined, was felt, which disappeared little by

little. Some months later a dermoid cyst, containing hair and calcareous patches, was successfully removed by Hermann.

The second case was observed in a woman taken to the hospital with grave hæmorrhage. By palpation, a lobulated tumor, very hard, as large as a fœtal head of seven months, was found, situated between the vagina and rectum, and so low that the posterior vaginal wall was pressed against the vulva. The finger could hardly pass between the tumor and the symphysis, above which was the cervix still undilated. A diagnosis of multilocular ovarian cyst was made. The woman was placed in the genu-pectoral position and taxis made. In fifty minutes the finger could be passed into the cervix, when placenta prævia was determined. Manual dilatation of cervix being made, the placenta was detached on one side and a still-born child extracted, covered with blood. The mother recovered. Some time after confinement the tumor had diminished, and soon was no larger than a kidney, lodged on the right side of the uterus, near Douglas's *cul-de-sac*. Tison ⁷⁰_{May 1} publishes a case of acute peritonitis following rupture of a dermoid cyst in a lying-in woman, dead five days and ten hours after accouchement. There had been prolapsus of the cord, which had been torn out by the midwife in her efforts at delivery. Ergot had been administered. Finally, a doctor was called in, who delivered the woman by application of forceps.

Chaleix ⁷⁰_{Aug. 21} relates a case of dystocia in a woman who had undergone an operation for shortening of the round ligaments. The confinement was normal, but the child, who had a circle round the neck, could not be made to breathe. After the expulsion of the fœtus hæmorrhage occurred. Chaleix was summoned, and attempted artificial delivery, but found the placenta inserted in the right horn, which was lengthened like a funnel, and the opening of which was as large as a five-franc piece. With the hand he dilated this orifice and extracted the placenta. During the operation the author observed that the right horn of the uterus was very distinctly in front of the other. The patient had submitted to an operation, some months before becoming *enceinte*, for endometritis and retroversion. It was intended to shorten the round ligaments, but the left was found to be in such a condition that it was deemed best not to touch it. The right, however, was shortened by at least ten centimetres. The woman was cured, but

at the same time the right uterine horn was pulled forward, and to this anomaly Chaleix attributed the difficulty in delivery.

W. J. Rabeneau⁸²_{Apr. 80} had a case of labor and complicated lung disease in a woman of tuberculous antecedents. She was confined at full term, while suffering from double pneumonia. When Rabeneau saw her, her condition was desperate. He practiced artificial dilatation of the cervix, with the fingers and the dilator, under anæsthesia, and extracted, with the forceps, a living child weighing nearly 12 pounds (5.5 kilogrammes). Expulsion of the placenta occurred in fifty minutes. The patient was expected to die every moment; but she was carefully attended, and recovered.

R. Provan⁹⁹_{July 7} reports a case of extreme dyspnœa and cyanosis before, during, and after labor, in a woman whose pregnancy had been very good. Three days before accouchement intense dyspnœa appeared. When labor began artificial dilatation was made, and the delivery hastened. After the expulsion of the child the dyspnœa continued. A few days later albumen was found in the urine, with pus and blood-globules. After alternating between better and worse, the patient died suddenly. Nearly all her maternal relations were affected with heart disease. In her brother, who died a few days after her, one of the valves of the heart was found to be absent.

VICIOUS PELVIS.

Budin⁷³_{May} discusses asymmetry of the nates from an obstetrical point of view. He observed that, in one woman who had an oblique-oval (Naegelé's) pelvis, recourse to cephalic embryotomy was necessary in three previous confinements. Internal exploration of the pelvic walls showed the variety of pelvis with which one had to deal. Placing the woman face downward, on examining the nates, it was noticed that the pathological side, where the ala of the sacrum was wanting, was narrower than the healthy side; the distance between the trochanteric region and the furrow between the nates was twelve centimetres, while on the healthy side it was sixteen centimetres. The asymmetry of the nates was thus manifested. The depression generally found on each side of the spinous processes, corresponding to the posterior spines of the ilium, did not exist on the left, or diseased, side. In fact, on the left side, the sacral wing being absent, the posterior region of the sacral crest, as Naegelé has shown, reached up to

the line of the spinous processes of the vertebral column. Asymmetry of the nates may be found. In a woman with infantile paralysis on the left side the left lower extremity showed four centimetres of shortening, the bones were atrophied, and the thigh was but thirty-two centimetres in circumference, while the healthy thigh measured forty-two centimetres. On the left side the trochanteric region to the furrow between the nates measured fourteen centimetres; on the healthy side eighteen centimetres; above, the two depressions corresponding to the posterior iliac spine were normal. In a third woman there was coxo-femoral dislocation on the right side, and the right lower extremity was atrophied. The right thigh measured thirty and one-fourth centimetres in circumference, while on the left it was thirty-seven centimetres. There was also asymmetry of the nates; but in this case the right nates, corresponding to the atrophied member, was larger than that of the healthy member. To the right the upper portion of the nates measured sixteen and one-half centimetres from the right trochanteric region to the furrow of the nates, and on the left side eleven centimetres. If the nates were larger on the diseased side, it was because the femoral head had left the cotyloid cavity, and the trochanter projected forward. In this case, also, there were two depressions corresponding to the posterior-iliac spines.

These cases prove the existence of asymmetry of the nates in oblique-oval pelvis, the flattened nates and the absence of the depression, of which we have spoken, occurring on the pathological side. In infantile paralysis asymmetry of the nates may also exist, the flattened side corresponding to the paralyzed side; the two depressions existing, however, on the level of the posterior iliac spines. Asymmetry of the nates may also exist in coxo-femoral dislocations, the larger nates corresponding to the dislocated side, the two depressions still existing in each side of the vertebral column. Other signs, obtained by examination of the lower limbs, will furnish additional elements for the diagnosis. Treub²³⁶_{Mar.} makes a contribution to the study of the kyphotic pelvis, explaining the mechanism of compensation, the deformities following it (lordosis, diminution of the angle of the pelvis), and the influence of the age at which it appeared. He cites two clinical cases. This memoir tends to prove the falsity of Freund's theory that the infantile pelvis plays a rôle in the formation of the kyphotic

pelvis. According to Treub, this rôle consists simply in this, that the vertebræ take the normal masculine curve instead of the feminine. A. Sabatier²¹¹_{Jan.24} observed a pelvis with double sacro-iliac ankylosis, and adds to the morphological types described by him in a preceding memoir,²¹¹₇₉ viz., in the Robert-Dubois pelvis, or, properly speaking, the Robert pelvis, and a third form in which the sacrum is rectilinear, like the sacrum of a newly-born child: (a) a type of antero-posterior narrowness; (b) an original type recalling that of Robert-Dubois by the transverse narrowness and the elevation of the promontory, distinguished by a sacrum with six vertebræ, and by the non-traumatic origin of the ankylosis.

Double synostosis is a most ordinary lesion, incapable in itself of modeling the pelvis according to a uniform rule. It accompanies the most variable vicious obstetric conditions, even of opposite character. It is an error to consider it as always associated with shortening of transverse diameters. But one pathological cause governs general malformation of the pelvis and sacro-iliac joint. The influence of fractures and of osteo-arthritis in childhood, whether suppurative or not, is plainly demonstrated in certain cases; in others, on the contrary, and these are the more frequent, all appreciable cause seems absent, and recourse is had to vague theories, as spontaneous arrest of development, congenital union of epiphysis, and disturbances of ossification. To these theories Sabatier prefers that of rachitism, because it is at least founded on palpable symptoms and appears reasonable. The same is true as regards pelvis with unilateral or Nægelé's ankylosis. Like those with double ankylosis, they may be ranged in two pathogenic groups, the first arising from osteo-arthritis, sacro-coxalgias, or coxalgias, by propagation; the second, from union or spontaneous ossification. The author believes that to find a more precise cause the stigmata of rachitism should be sought for.

FORCEPS.

Loviot¹⁹⁴_{June} relates a case in which application of forceps was made for a right posterior occipito-iliac presentation after manual reduction. The child had five circles around the neck. The cord measured 1.25 centimetres. II. Harris,⁶_{Apr.10} in a case of presentation by shoulder, not being able to introduce the hand to effect version, applies the forceps in such a way as to bring down the breech.

S. Rémy²³⁶_{Feb.} speaks of cases of persistent posterior position and

of certain difficulties which are encountered, as when the rotation takes place behind; when there is danger for both mother and child. Rémy examines the cases of deflection in which there is impaction of the head in a normal pelvis. Rotation not taking place, the head remains immobile, and the forceps may be used, but sometimes the latter slip off. He cites a case in which the Tarnier forceps slipped off three times in his hands. This slipping is explained by the deflection of the head, and by the position of the terminals of the forceps, the curve of which is toward the face. Traction only accentuated the deflections, for traction is exerted on the sides of the forehead. The transverse diameters of the head form two inclined planes which would tend to meet in front of the brow. These inclined planes help the forceps to slip toward the narrowest part, and thus lose their hold. Rémy concludes that in all applications of the forceps for a posterior position of the vertex, the handles must be held far back in order to place the axis of the terminals as parallel as possible to the large axis of the head, and to maintain the handles in position until the occiput has descended. Tarnier, at the London Congress in 1881, explained the slipping of the forceps in posterior occipital presentations.

Freund ³¹⁷_{Apr.23} reports a case of the application of forceps which resulted in circular rupture of the posterior circumference of the vaginal walls and two lateral lacerations of the cervix. Complete spontaneous union caused a cure. Charles de Liège, ²⁵⁶_{Mar.30} in a primipara at term, applied the forceps in delivery. Rupture of the perineum followed, with septicæmia, retention of urine, and death on the ninth day. Porak ¹⁹⁴_{Nov.} makes two observations on the danger of applying the forceps following the antero-posterior diameter of the superior strait. Case I. Woman having had three previous tedious accouchements, terminated by podalic version. Fourth labor, full term. Prolapsus of cord reduced. Application of forceps, following antero-posterior diameter of superior strait, five hours after complete dilatation of the cervix. The head of the child, which was large, presenting itself in O. I. G. T., inclined on the posterior parietal, was slightly replaced. Second application of forceps, following oblique diameter, caused easy extraction. A large rupture of posterior *cul-de-sac* of the vagina was treated by tampons. Recovery. Case II. A IV-para, whose three previous pregnancies

were terminated by delivery of living children. Fourth confinement difficult. Seven applications of forceps had been unsuccessful,—three at home and four in hospital, the latter following the antero-posterior diameter. Symphyseotomy and extraction of child, which could not be re-animated. The mother succumbed a short time after. At autopsy, perforation of the posterior wall of uterus was found. Porak holds that death was not attributable to symphyseotomy, but to the manner in which the forceps were used, which led to uterine perforation. Budin, in the discussion which followed this communication, stated that two points especially struck him in Porak's communication. In one of his cases two living children presented by the feet, which would seem to show that, in certain narrowed pelves, version is not always more unfavorable than the forceps. An application of forceps practiced by placing the blades at the extremities of the antero-posterior diameter of the pelvis did not succeed in engaging the head, while an oblique application, immediately after, allowed time to clear the superior strait. The latter result entirely agrees with experiments made by him some years ago, at the *école pratique*, in presence of Maygrier, Crouzat, Bonnaire, and Ollivier, which led him to conclude that the only good application of forceps to the superior strait is the oblique. Further, antero-posterior application is not always easy, professed accoucheurs meeting with great difficulty. Finally, it is dangerous for the child, and especially for the mother, as Porak's observations prove. Budin reports a personal case, where, after attempted extraction by antero-posterior application, the woman succumbed to a perforation of the posterior uterine wall.

In the course of a discussion on symphyseotomy at the Gynæcological Society of Dresden, Marschner³¹⁷_{No.31} reported the case of a woman who, during an easy application of forceps under chloroform, threw herself suddenly on her side. The pubes were found to be separated. Osseous suture was practiced. The patient recovered and is to-day on the point of again giving birth to a child. She walks without pain, but in bad weather, or after a walk on a bad road, she feels neuralgic pains in the pelvis and in the left leg.

Pazzi Murio⁹⁴³_{Jan. ; Apr. 162} has invented a new forceps which will allow the accoucheur to exercise tractions in the pelvic axis. The blades, by means of a button and of a special contrivance, close over the handles. When the forceps have been introduced and closed, the

blades form right angles with the handles. In this position they pull on the part presented as far as the inferior strait, when the forceps must be straightened or raised so that the inclination of the blades on the handles may not wound the maternal parts.

RUPTURE OF THE UTERUS.

Maygrier²¹⁵⁶_{Apr.} reported a case of incomplete external rupture of the uterus, in a woman who, being in labor, received a kick in the abdomen. From that time the contractions ceased; the abdomen became painful; the child was found to be dead. The patient was taken to the hospital, and died upon arrival. At the autopsy, a large clot of blood was found on the anterior surface of the uterus and liquid blood in the peritoneum. There was a deep, large wound on the external surface, but the cavity of the uterus was not penetrated. There were some superficial abrasions, implicating only the serous layer. The lesion was below the annular contraction, the placenta being inserted on this same anterior surface. There was no organic alteration in the muscular tissue. Maygrier thinks that the solution of continuity due to direct traumatism existed before she entered the hospital, and that the jolting of the vehicle in which she was brought there, the contractions, etc., caused the wound to increase in size and occasioned the hæmorrhage from which she died. Incomplete ruptures are rare, usually occupying the internal surface of the uterus. Simple peritoneal fissures are more common (Math. Duncan) and nearly always caused by a blow or a fall. However, according to Spiegelberg, Simpson has seen it produced after hyperdistension of the uterus, due to an intra-uterine injection given to provoke childbirth. It has even been supposed that these fissures might arise spontaneously. In a case of Clarke's more than sixty were seen on the posterior surface of the uterus. Complete ruptures of the uterus are less rare. They arise from various causes. All modes of treatment are, by turns, successful and unsuccessful.

J. M. Withrow⁵³_{Dec. 5, '91} cites a case of rupture following the administration of a liquid (?) by a midwife. He discusses the causes, diagnosis, and treatment of uterine rupture. Schwartz, of Pünfkirchen,³¹⁷_{No. 2} reports two cases. The first, a woman of 29 years, in her ninth pregnancy, was in labor for three days. Version being followed by hæmorrhage, Schwartz attempted artificial ex-

traction of the very adherent placenta. Some instants after, the woman uttered a cry and fell into syncope. Appropriate treatment (?) was adopted, and it was found that the uterus had ruptured posteriorly, above the cervix, for about fifteen centimetres. Suture and iodoform gauze tampons were used. The mother recovered. The second case was in a woman of 32 years, also in her ninth labor, the child being extracted by Kristeller's expression method. Rupture of the uterus followed. The wound was sutured and tampons applied. Death occurred several days later from complications, abscesses, etc. E. Reynolds⁹⁹_{Jan. 23} has twice observed this accident and treated it by expectation: Case I. Woman in labor for eighteen hours; cervix dilated to the size of a dollar. The author introduced his hand to turn the head. Hardly had this been done when, without the least effort, the uterus ruptured. The operator rapidly effected version and delivery. The woman recovered from the shock, but peritonitis set in, which at first seemed to decrease, and the patient died on the eighth day. Case II. Primipara, in labor for a long time. Manual dilatation was made, version having failed, by Cr  de's method. The hand introduced within the vagina discovered a wide rupture in the posterior *cul-de-sac*. The patient recovered.

Reynolds cites also the case of Goffe, who was consulted by a woman four months after confinement, which she said was normal. He found the uterus perforated at the fundus. Goffe had already seen a similar case. Reynolds adds that spontaneous recoveries are extremely rare in such cases. When there is uterine rupture, laparotomy and suture of the organ is indicated, especially if there be progressive and persistent h  morrhage. This is the only treatment which will prevent peritonitis, and is the only one indicated when the rupture is small and inaccessible, and when foreign substances which have passed into the peritoneum are numerous or of a septic nature. G. Haven⁹⁹_{Jan. 23} speaks of a woman who had attacks of eclampsia. Chloroform was administered and manual dilatation of the cervix performed. Labor followed, with perfect recovery. Ten days later repeated h  morrhage occurred, and was treated by curetting and extraction of a small portion of the placenta. Another h  morrhage followed, which curetting did not arrest. Perforation of the uterus was found, laparotomy and suture of the organ were performed, and recovery followed.

Uterine ruptures may be produced at the beginning of labor. Chercha ⁵⁶⁹_{No. 42, '91} ²_{Apr.} gives the following example: A IV-para, at term, felt, before labor, a violent pain in the hypogastrium. At the end of four days there was pain, fever, tympanites, and collapse. Hydrocephalus, with probable rupture of uterus, was diagnosed, and Chercha made version after dilating the cervix. Perforation of the cranium and extraction of a macerated foetus were followed by the discharge of a fetid liquid. Searching for the placenta, a portion was found within the abdominal cavity. No injections were made. The intestines, which had descended into the uterus, were replaced in the abdomen and the wound plugged with iodoform gauze. For six weeks the patient had parametritis, with elevated temperature. Finally, she recovered, but a vesico-vaginal fistula persisted. Chercha notes that Hoffmann and Simpson have observed ruptures of the uterus at the commencement of labor, not preceded by acute pain. H. Hatch, of Quincy, Ill., ⁸²_{Dec., '91} observed a case cured without operation. There was hour-glass contraction before the expulsion of the foetus. Forceps were used under chloroform in vain. Version was performed, and a dead child extracted. Rupture of the uterus followed, and was treated by antisepsis and drainage. On the third day pneumonia developed. After three weeks the patient was out of danger and had recovered. No operation was attempted, as the family were opposed to it.

Porak and Bogdan ²¹⁵⁷ give two methods of treatment. Laparotomy, or extraction of the child by the natural passages, is indicated when the child is in the abdomen and the uterus is retracted. Porak and Bogdan have seen a case where, after rupture of the uterus, the child having passed into the abdomen, the pregnancy was transformed into an extra-uterine one, and life was possible for the child for some time. This can only be the case when the sac of water is intact. Extraction of the foetus by natural means should be tried when the rupture does not become enlarged, and when the cervix is widely dilated. In four cases of this kind there were two recoveries. If the child be dead, basiotripsy is indicated. As for the mother, if the rupture is complete intra-uterine injections must not be made, as the peritoneum might become affected, but iodoform-gauze tampons and drainage should be employed. Barry ²_{Mar.} relates the case of a primipara of 35, with contracted pelvis, in labor for thirty-eight hours. Rupture of the

uterus occurred, and Barry performed basiotripsy and extracted the child. The woman recovered. Barry formulates the same precepts for treatment as Porak and Bogdan. W. Smyly⁴⁹_{May} saw a fatal case of rupture of the uterus in a woman of 27, with pendulous abdomen. Winter²_{May 7} reports a case of complete rupture of the uterus in a III-para of 29, after nineteen hours of labor. The child had passed into the abdomen. Laparotomy was followed by death.

INVERSION OF THE UTERUS.

This accident is most frequently produced by rough traction on the cord by midwives, or even by physicians, as in cases reported by Crommelin,²⁶⁷_{May} of complete inversion of the uterus, or inversion of the third degree; A. Boodle,²⁶⁷_{May} inversion of the uterus of three days' duration; and Hirst,⁴⁸_{July} The hæmorrhage which accompanies inversion may be considerable enough to carry off the patient before aid can be given, as in the case reported by Bissett.²⁸²_{Feb.} Sometimes the patients die from complications. Noble²¹⁵⁸_{June 2} reduced the inversion in a case in which there was considerable hæmorrhage and lesions of the uterus. The patient was attacked by tetanus on the seventh day and died on the tenth.

Newton Benson⁵⁴⁷_{Apr.} cites the case of a woman who died from intestinal complications, although reduction of the inversion had been easy. Carlo Decio⁹⁴³_{Jan.} reports two cases. The first was one of puerperal uterine inversion of the fourth degree, occurring on the eighth day after artificial delivery. Profound anæmia from hæmorrhage, and septicæmia followed. Amputation of the uterus by elastic ligature was performed. Recovery. The second case was caused by a fibrous polypus, showing incipient sphacelus. Decio, from these cases and a review of the literature, draws the following conclusions: 1. The condition necessary to produce puerperal inversion is inertia of the uterus, especially of the inferior segment, which thus affords an orifice sufficiently dilated or dilatable. 2. Abdominal pressure of the intestine upon the external surface of the uterus, even in a state of inertia, is a very improbable cause. 3. The tractions exercised on the internal surface of the uterus by the umbilical cord is not alone sufficient, generally speaking, to produce complete inversion, and to it must be added other favorable conditions. 4. Spontaneous inversion after irregular contractions is very improbable. 5. The rarity of this

accident is explained by the fact that a combination of special causes is necessary for its production. The author follows up his conclusions by considering the treatment, and insists on amputation or external hysterotomy, giving a mode of operating that will prevent any lesion of the intestinal loops which may have slipped into the cavity formed by the inverted uterus. Gordon^{157 Jan.} relates the case of a primipara of 26, at term, in which forceps were applied because of insufficient contractions. Delivery was effected by expression and moderate traction on the cord, and the placenta was extracted entire. Not finding the uterus above the symphysis, Gordon examined the patient and found the organ inverted in the vagina; there was also hæmorrhage. Reduction was easy, but as soon as the hand was taken away the uterus again became inverted. Very hot injections of carbolic-acid solution (1 per cent.) caused strong contraction; the reduction was permanent. St. Clair Gray^{2 June 2} speaks of a woman who was delivered of a living child by a very simple application of the forceps. The uterus contracted well. While the child was being cared for, the mother suffered from alarming hæmorrhage and collapse. Thinking it might be post-partum hæmorrhage, Gray made an examination, and found the uterus completely inverted, with adherent placenta, in the vagina. Reduction was made *en masse*, and a little later the placenta was extracted. Recovery. In this patient no traction had been made on the cord, and delivery was easy. The inversion can only be explained by sudden dilatation of the uterus, the fundus of which had been dragged down by the weight of the placenta.

CÆSARIAN SECTION.

The question of Cæsarian section *in extremis* and after death having been taken into consideration by the political and legislative authorities of Bavaria, Winckel^{1084 No. 3} published a memoir in which, after having established that the Cæsarian operation practiced thirty minutes at most after the death of the mother gives considerable chances of life to the child, he expresses the opinion that this intervention should be made whenever the mother has succumbed rapidly, and when there is reason to suppose that the fœtus is still living. The best results were obtained when the operation was performed during the first ten minutes after the mother's death. Winckel also advises recourse to Cæsarian section *in extremis*, where death is absolutely certain, if the beat-

ings of the child's pulse can be heard. Aalsmeer, of Surinam, ^{317 2}_{No. 1; May 21} performed Cæsarian section in a case of abnormally long cervix, in a negress of 22, whose first confinement had been terminated by perforation. This woman, who was in labor a whole day, still presented a cervix six and three-fifths inches long, the vaginal portion alone measuring three and one-half inches, and hardly admitting the finger. The pelvis was much retracted. In spite of profuse hæmorrhage the mother recovered and the child was saved.

Jewett ²_{Mar.} gives a *résumé* of three cases of Cæsarian section modified according to the method of Sanger-Müller. The adnexa were not removed, but the tubes were ligatured. Excellent results were obtained for mother and child. These operations have been performed by Leith Napier, John Shaw, and Cullingworth. In the discussion following this communication to the London Obstetrical Society, Murdoch Cameron declared himself in favor of Cæsarian operation as against that of Porro. Bogdanik, of Biela, ³¹⁷_{No. 6} was called to a woman, in her twelfth accouchement, who was affected by uterine and vaginal cancer. Cæsarian section was necessary, and the child was saved, but the woman died several hours later.

Runge ⁹⁵_{B. 46, H. 1, 2} reports a successful case of Cæsarian operation with reduction of the pedicle, in a case of osteomalacia. Slowig, of Presburg, ^{317 2}_{No. 38, June} was obliged to perform the operation in a similar case, on a III-para in labor, with ruptured membranes. He delivered a living child and removed the appendages. After the operation an adhesion formed between the abdominal cicatrix and the uterine wall. The osteomalacia was cured, evidently, by the oöphorectomy. The author concludes that the latter operation should always be done when Cæsarian section is performed for osteomalacia. Guéniot ¹⁹⁴_{Feb. 18} presented the cases of two women operated on and cured by Cæsarian section, one of whom had osteomalacia. She was submitted to preliminary treatment, and the Cæsarian operation performed without ablation of the ovaries. Recovery was perfect. Guéniot insists that castration, so abused in Germany, is an unnecessary mutilation in osteomalacia.

PORRO'S OPERATION.

Delagenière ²³⁶_{p. 960} reports two interesting cases of operative obstetrics, the first of which was for dystocia in a woman of 38, with fibroma. Porro's operation was performed, it being necessary to

cope with a severe intra-uterine hæmorrhage at the same time. The mother and child were both saved. From this case the author concludes that cases of dystocia may be divided into two classes, transitory and permanent. In the first, resort may be had to conservative surgery (Cæsarian section, symphyseotomy); in the second, more radical means are necessary, which render future pregnancy impossible. There is no choice but between Cæsarian section followed by double castration, and Porro's operation. The indications for the latter may be stated as (1) permanent obstruction, having its seat in the uterus, which would disappear with the uterus; (2) impossibility of performing castration after Cæsarian section, or too great difficulty in doing so; (3) great hæmorrhage from the uterine cavity after the delivery of fœtus and placenta; (4) uterine inertia.

In the second case there was a multilocular cyst of the right ovary in a woman three months pregnant. Development of the uterus led to torsion of the pedicle, with grave general symptoms. Ovariectomy was performed at once; the patient recovered and was normally delivered six months later, at term. This case, with other analogous ones, shows that the surgeon may be called upon to open the abdomen not only in cases of probable pregnancy, but also in cases of real pregnancy. Delagenière gives two indications: 1. Pregnancy, combined with grave symptoms of peritonitis, strangulation, etc. Here hesitation is impossible; the operation must be performed. 2. If, without alarming symptoms, an abdominal tumor be discovered in a pregnant woman, or if pregnancy be suspected in a case in which laparotomy is indicated, the operation should be performed, for (*a*) pregnancy is not compromised by the operation, while it is compromised by the tumor; (*b*) failure to operate subjects the patient to the risk of peritoneal accidents and abortion, which are as grave complications as are those connected with the operation.

Everke⁶⁹_{Jan. 8} performed Porro's operation in case of contracted pelvis due to osteomalacia, with recovery of the patient. He concludes that the operation should be preferred to Cæsarian section with oöphorectomy, and in the treatment of the pedicle prefers the extra-peritoneal method. J. F. Black saved both mother and child in a case complicated by uterine fibroma. Previous to pregnancy the abdomen was as large as that of a woman at term. The uterine

mass weighed $19\frac{1}{2}$ pounds (8.8 kilogrammes); the child, which was healthy and well developed, weighed 8 pounds (3.6 kilogrammes). The author thinks that craniotomy must become more and more infrequent. C. Kollock, ⁴³July in a case of pelvic contraction, saved both mother and child by laparo-hysterectomy.

BASIOTRIPSY.

Marta, of Venice, performed basiotripsy in a case of contracted pelvis. The woman was 1.39 metres (4 ft. $6\frac{1}{2}$ in.) in height, and had not walked until she was 3 years of age; she showed no symptoms of rachitism, yet there was marked deformation of the pelvis,—that is, a rachitic, flattened pelvis, uniformly contracted, of which the minimum antero-posterior diameter of the superior strait was only six centimetres.

SYMPHYSEOTOMY.

For a long time this operation was in disuse, but for some years past there has been a reaction in its favor, above all in Italy, where it was never completely abandoned. Mangiagalli, in 1884, called attention to its good results, if recourse be had to it under well-defined conditions. In France, a few years later, Bouchacourt published an accurate and comprehensible article upon the subject.

However, it was not until the advent of Spinelli in France as an apostle of symphyseotomy that it was accepted. In a brochure upon the subject ²¹⁵⁹;⁴⁸Jan. he gives the results of antiseptic symphyseotomy in the school at Naples. Of 24 cases, 12 were performed by Morisani at Naples, 5 at the Maternité of the Grand Hospital for Incurables, and 7 in private practice. It was practiced twice upon one patient. In 4 cases the true conjugate was 6, 3.6, 5.6, 6.6, and 9 centimetres. Spinelli concludes as follows: 1. That a child at term, by means of symphyseotomy, may pass through a pelvis measuring 65 millimetres in the true conjugate, —dimensions for which obstetricians of all countries perform embryotomy or Cæsarian section. 2. That a woman with deformed pelvis may safely submit to symphyseotomy, provided it be performed antiseptically and within the limits indicated.

In February, 1892, after the visit of Spinelli, Pinard ⁴⁸Feb. gave the results of the operation in his own hands, with the assistance

of Varnier and Farabeuf, reaching the conclusion that the superior strait, when contracted, may by this operation be notably increased (2 millimetres per cent. separation). Kept within proper limits, this separation involves no other alteration of the pelvis except division of the anterior ligaments of the sacro-iliac synchondroses. These latter, however, unite well within a month. The operation is one of the most simple, and may be performed by any practitioner. Pinard divides the symphysis from before backward. Charpentier, of Paris, being in Italy, Morisani gave a lecture in his honor, ⁴⁸_{Apr.} in which he demonstrated: 1. The mechanism by which augmentation of the pelvis could be obtained. 2. The limits within which the operation is indicated (67 and 88 millimetres). 3. The relative value of this operation and those which may be substituted for it: Cæsarian section, beginning where symphyseotomy ends; and premature delivery, which the conscientious physician must always prefer when the woman is only seven or eight months pregnant. 4. The causes which formerly rendered symphyseotomy so grave for mother and child, and caused it to be abandoned. 5. The technique of the operation: Section of the pubis from above downward, from behind forward, or from the front backward,—not exceeding an enlargement of 6 to 7 centimetres, as otherwise the articulations might be exposed to grave lesions. Morisani does not explain the mechanism of the increase in the size of the superior strait very clearly, but speaks principally of the total enlargement of the pelvic area given by the separation of the pubic bones,—an enlargement which plays a greater rôle than might be supposed. On his return from Italy, Charpentier made a report to the Paris Academy of Medicine, ²¹⁵⁶_{Mar. 15, 22} in which he presented the ideas of Morisani, declaring himself in favor of symphyseotomy, and believing that it was destined to be of great service. On all sides now sprung up observations and articles upon the subject, in France and other countries. Pinard ²¹⁵⁶_{Apr. 21} gave the details of three successful cases. A little later, Tarnier, ¹⁰_{June 28} reported the case of a rachitic woman in her fifth pregnancy. The pelvis measured 7.5 centimetres. The four previous confinements had been terminated by cephalotripsy. Tarnier brought on the fifth labor at the eighth month by symphyseotomy, then applied the forceps to the head, which had not become engaged. In passing the interpubic space, the dilatation reached 57 millimetres. The child was

living, and weighed 2230 grammes (4 pounds), the biparietal diameter being 9 centimetres. The results were excellent, both for mother and child. The following month, Porak,^{10 July 18} communicated to the Academy a case with successful termination, in a rachitic woman at term, whose sacro-pubic diameter was 9.6 centimetres. A living child was delivered with the forceps, which weighed 2600 grammes ($5\frac{3}{4}$ pounds). The mother recovered completely by the seventh day.

Mullerheim^{48 Aug.} reports the case of a woman who had already had two difficult labors. The first was spontaneous, the child dying from the slow progress of the labor; and in the second a living child was extracted with forceps. The subpubic promontory was 10 centimetres in diameter. Mullerheim performed symphyseotomy at term, after assuring himself of the mobility of the symphyses. After section of the pubis and triangular ligaments, the patient was spontaneously delivered of a child weighing 4000 grammes ($8\frac{1}{2}$ pounds), the biparietal diameter being 11 centimetres. Following the operation, the sacro-iliac articulations became very painful on pressure, and hæmatoma of the right labium major developed. However, the patient recovered perfectly, and the child remained healthy.

Duchamp, of St. Etienne,^{228 Aug. 15} performed this operation upon a young rachitic patient of 23 years, in labor at term, the forceps having been tried without success. After the section the pubis was dilated the width of two fingers, and the child was easily extracted. The convalescence of the mother was without incident. A second operation was performed by Porak,^{48 Sept.} on a rachitic primipara of 25 years, at term and in labor. The subpubic promontory was 9.6 centimetres in diameter. Application of the forceps had been useless. After symphyseotomy the child was easily removed with forceps. It was living, weighed 2620 grammes ($5\frac{3}{4}$ pounds), and there was marked flattening of the head in its transverse diameter. For three or four days the temperature of the patient was 38° C. (100.4° F.), and a month later mobility of the symphyses persisted.

While these observations were being published in France, Spinelli continued to support the operation in Italy. In a series of articles^{943 Nos. 6, 7, 8} he outlined the history of symphyseotomy since its origin, dividing it into three periods: First, from the time of its

introduction by Sigault to the beginning of the nineteenth century, giving the opinion of Baudelocque upon it, its history in Italy, Germany (Siebold), and other countries; second, the Italian period, from the beginning of the nineteenth century to 1886, during which time the operation was everywhere abandoned, except in Italy, where Assalini, Galbiati, Bellhizi, and, above all, Morisani and Mangiagalli remained faithful to it; third, the period beginning in 1886. Caruse, in the same journal, ⁹⁴³_{No. 4} claims for Italy the glory of having had faith in the operation of Sigault, and gives the results of two cases of his own, with statistics of twenty others. His conclusions are entirely favorable, and agree with those of Morisani. He adds, further, that in certain cases it is necessary to combine symphyseotomy with embryotomy, as successfully practiced by Novi.

In Germany, also, the operation has been attempted, Leopold ⁴⁸_{Aug.} having practiced it twice, with happy results both for mother and child. In the first case the pelvis was contracted in all its diameters, flat, and rachitic. It was the fourth pregnancy, at term; the previous ones had been difficult, the children dead. When dilatation was complete, Leopold divided the pubis, applied forceps to the head, which was high up, and extracted a child weighing 3565 grammes ($7\frac{4}{5}$ pounds), the biparietal diameter being 9.75 centimetres. During the passage of the head the separation reached 7 centimetres. As the subpubic ligament had not been cut, it was suddenly ruptured, and hæmorrhage ensued from lesion of the bulbo-cavernosis of the clitoris. The second operation was in a woman of 37 years, at term, in whom previous labors had been terminated by perforation. Symphyseotomy, without section of the triangular ligament, was done, and a child weighing 3310 grammes ($7\frac{1}{3}$ pounds) was extracted, the biparietal diameter being 9.75 centimetres. The separation reached 6.5 centimetres. Leopold, in spite of the brilliant results obtained by him in Cæsarian section, recognizes the utility of symphyseotomy. He makes the incision from before backward, with a probe-pointed bistoury, the extremity of which is directed with the index finger behind the pubic symphysis freed from the soft parts. He believes that in certain cases it is not necessary to completely sever the symphysis, since a separation of three centimetres may be obtained before the section is complete, and the desired end is obtained,

since the symphysis projects inward, especially in its upper half; hence it may be separated only as much as is required in each case. This is not the opinion of Porak,²¹⁵²_{Sept.} who, in reporting two cases, claims that the triangular ligament is strong and inelastic, and permits but a very small angular separation of the symphysis, if it be preserved intact; also, that with but slight separation there is a diastasis of one of the sacro-iliac articulations, and, with seven or eight centimetres of separation, a diastasis of both and rupture of the anterior ligaments.

Varnier⁶³_{Nos. 55, 56} and Wallich¹⁴_{Oct. 23} publish articles which, without elucidating anything new, claim that perforation, cephalotripsy, basiotripsy, and Cæsarian section are terms which may be eventually erased from the obstetric vocabulary, all being superseded by symphyseotomy. Desforges²⁰⁰⁷ has also written upon the subject from a historical stand-point; while Hubert de Louvain²³⁶_{Aug.} adds his note of praise. In America, Harris pleads in its favor, and has advocated it since 1883. He does not think it indicated in the Robert or Naegelé pelvis, or in those in which there exists an ankylosis due to coxalgia.

However, the cases in which the result was not always a happy one come to point to prudence in its employment. Törn-gren, of Helsingfors,²³⁶_{Dec.} performed the operation twice, the first case being a IX-para of 40 years, who had been delivered spontaneously five times and artificially three times. Being in labor at term, a separation of five centimetres of the pubes was made, and a child weighing 3400 grammes (7½ pounds) was extracted, the biparietal diameter being 9.5 centimetres. The patient died twelve hours after the operation. The autopsy revealed nothing, and death was attributed to chloroform and the poor general health of the woman. The second operation was performed upon a II-para. The triangular ligament not having been cut, it was ruptured by the passage of the head, and gave rise to considerable hæmorrhage. Gotchaux²⁰⁰⁷ states that a symphyseotomy attempted by the chief of Fochier's clinic resulted in the death of both mother and child. Other cases, not yet published, are as follow: Porak, two cases, death of mother and child; Beugnies and Givet, symphyseotomy, application of forceps without result, and subsequent basiotripsy; Tollemer, Hôpital Cochin, symphyseotomy, followed by rupture of the urethra; Ribemont, six cases, with two deaths of both mother

and child. On the other hand, Budin has combined symphyseotomy with induced premature labor, saving both mother and child. Queirel, of Marseilles, in four cases, met with success in all.

Pinard,⁴⁸_{Dec.} at the Clinique Baudelocque, gave a *résumé* of 13 cases in his service during the current year. In 2 cases labor was induced at eight months; 2 had been previously delivered of large and living children spontaneously at term; in 2 other cases delivery had previously been effected, at term, with forceps, the children being alive. Of these 13 cases, 7 suffered from complications after the operation,—rupture of the vagina, abscess of labia majora, phlegmasia alba dolens; in 5 the temperature exceeded 38° C. (100.4° F.). As regards the children, 3 died; 1 on the third day from meningeal hæmorrhage, 1 the day after birth, and the third suffered from a depression of the frontal bone, caused by the somewhat oblique grasp of the anterior blade of the forceps. Pinard concludes that, symphyseotomy being performed, the application of the forceps is preferable to extraction by the feet. They should be applied posteriorly on the deflected head; the pubes should be separated at least four centimetres, and no more than seven centimetres. If the placenta be not detached in half an hour, artificial delivery should be performed, followed by an intra-uterine injection. If antero-posterior application of forceps be not successful in a case of labor, symphyseotomy is the only thing left.

Gotchaux, a pupil of Budin, has published a thesis²⁰⁰⁷ upon the subject, viewing it from all sides, giving its history, indications and contra-indications, operative methods, and statistics. He dwells at some length upon ischio-pubiotomy, which consists in dividing, outside the symphysis pubis, one or both branches of the ischia, in order to enlarge the pelvis, in such a way as to constitute a univalvular or bivalvular passage in the anterior half of the cavity. This operation was first practiced by Gaspare Siebold, but its want of success caused it to be abandoned. Quite recently Farabeuf has brought it into notice, claiming that it is very simple, and that it is indicated in cases of oblique oval pelvis. Gotchaux's conclusions are as follow: Section of the symphysis does not only increase the antero-posterior diameter of the pelvis, but all the diameters, and consequently the circumference. Generally easy of performance, it should not be practiced without first studying the technique. Accidents in past operations and statis-

tics in the future will show the dangers which may accrue to the mother. It should never be attempted unless, by palpation, the separation of the pubes and the mobility of the symphyses are assured. The most exact measurements of the pelvis should be taken. Associated with premature accouchement, it permits of saving the life of children that basiotripsy would sacrifice. By means of antiseptics, it makes possible the limitation of the field of Cæsarian section within proper bounds. Gotchaux has collected the cases of symphyseotomy in France in 1892. Of these cases, 31 in number, 6 died, a mortality of 19.3 per 100. Eleven children died, making a mortality of 35.5 per cent.

THERAPEUTICS.

Ridgway Barker,⁶¹_{Mar.} in an article entitled "Some Exceptions to the Golden Rule of Obstetrics," describes a case of post-partum hæmorrhage in which it was impossible to arrest the flow of blood, although the uterus had been entirely emptied of its contents, and all means had been employed to obtain contraction. The patient died. Barker concludes from this case that the great law of obstetrics, to empty the uterus in cases of post-partum hæmorrhage, is not always sufficient. He is convinced that, had he used intra-uterine tampons, as advised by Dürrssen, he might have saved the woman's life. Stillmarch²¹_{No. 13} reports a case of hæmorrhage due to uterine inertia, in which contractions were brought on by the administration of wine of ipecac. When, owing to rigidity of the cervix, the uterine orifice does not dilate, although the contractions are strong, Asher²⁸⁵ recommends tincture of belladonna, which with him has been productive of excellent results. Freund³¹⁷_{'91} provokes uterine contractions by means of electricity applied to the mammary gland. Pingler¹⁰⁰¹_{May} used cold baths in two hundred cases immediately after the delivery of the child. This measure assured uterine contractions, prevented hæmorrhage and septicæmia, and favored expulsion of the placenta, even when adherent. Ewing¹⁷⁶_{Mar.} employs quinine in tedious labor, finding it superior to ergot. Henry¹⁰⁹_{June} has used it successfully for ten years. In cases in which there is rigidity of the uterine orifice, or where the contractions are too feeble, it is of great service, and in his opinion preferable to ergot. Cordes,¹⁹⁷_{June} in a memoir upon the use of quinine, gives the following conclusions: 1. Ergot, an excellent remedy

in arresting uterine and other hæmorrhages, should be replaced by quinine when the uterus contains a solid body, without excluding other treatment. 2. In tardy labor quinine is preferable to ergot, which may asphyxiate the child, either by the tetanic contractions which it causes or by its elective action upon the cervix. In medicinal, non-toxic doses it need not be feared for pregnant women suffering from intermittent fever, but, on the contrary, is useful in such cases.

Intra-uterine Injections.—Pletzer³¹⁷_{May 7} relates a case of death following an injection of perchloride of iron. Krukenberg³⁹³_{B.21,H.1} reports a case of death from the injection of carbolic acid, 2.7 per 100. At the autopsy, parenchymatous nephritis and endocarditis were found. Troquart¹⁸⁸_{p.421} calls attention to the extreme pain, convulsions, and syncope sometimes following intra-uterine injections. He believes that a portion of the liquid may reach the peritoneal cavity through the tubes, and may set up peritonitis if not thoroughly aseptic. Tarnier²¹⁵⁶_{May} discusses the accidents which may accompany these injections, such as syncope and sudden death. His ideas serve as the basis of a thesis by one of his pupils, Sylvestre, who thus classifies these accidents: Phenomena due to nervous reflexes with general symptoms, such as tinnitus aurium, dizziness, vertigo, tendency to syncope, or severe abdominal pain; uterine contractions, with chills and fever; hæmorrhage, not profuse and of short duration, sometimes accompanied by convulsions; maniacal delirium. In certain cases it is evident that the liquid has penetrated into the peritoneal cavity; in others, the symptoms are only the result of nervous reflex. Fatal syncope is rare, and it is possible in these cases to establish three classes, according as the autopsy has been negative, or the presence of air or liquid is found in the sinus. Death does not follow this latter accident except after injections of perchloride of iron. Death may also be caused by inhibition.

Antisepsis and Antiseptics.—Léopold and Goldberg⁹⁵_{B.40,H.3,'91} discuss the inutility of vaginal lavage and injections in normal labor and the great importance of palpation. They do not consider that the former should be used, except in certain complications,—as infection. Cooper disapproves¹⁴⁷_{Aug.} of internal manipulations during normal labor and following it. If septicæmia render injections necessary, he uses boiled sublimate solution (1 to 1000). Lanery²¹⁵⁶_{Apr.}

employs water alone, considering asepsis sufficient in obstetrics. Of one hundred cases thus treated, among which were two shoulder presentations, two cases of abnormal insertion of placenta, one of cephalotripsy, and six cases in which the patients were ill from other diseases, there was increase in temperature only nineteen times, and all recovered. In the discussion which followed this communication, Gaulard remarked that Lanery was in practice at the sea-shore, where the conditions generally were more salubrious than elsewhere. Fochier attributed Lanery's success more to the purity of the water than to the influence of the sea-air. Budin stated that, in the country, it might be possible to carry out such treatment successfully, but in the city it would not be possible. He insisted that the two hands and water were the two chief sources of infection, and recalled the case of a foreign maternity, in which, the accoucheur having been superseded by another, the latter proscribed antiseptics and replaced them by water. At first all went well, but soon cases of infection appeared, and a terrible epidemic occurred. The press getting hold of the matter, the poor accoucheur had cause to regret his faith in the illusions shared by Lanery. Charpentier also protested energetically against the conclusions of Lanery. Herrgott considered antisepsis a safeguard which should not be denied to the patient.

Queirel, at the same meeting, read a communication favoring the withdrawal from midwives of the right to administer ergot. Gaulard stated that, in the country, deprived of all aid, it is the only thing upon which the midwife can depend. Pinard stated that he had banished ergot from his clinic for seven or eight years, and had not had a single case of hæmorrhage. He is opposed both to ergot and the tampon, but he does not approve of prohibiting its use by midwives, thinking it better to teach them by example to do without it. Tarnier thought Pinard too arbitrary in not wishing to use either ergot or the tampon, believing both to be of great service at times. In this opinion he was sustained by Salmon, Gaulard, and Lefour, all agreeing that ergot should not be prohibited to the midwife.

ECLAMPSIA.

Etiology.—We are not much more advanced in our knowledge of eclampsia than were the physicians of forty or fifty years ago, and the literature of the past year throws but a feeble light upon

the subject. What is the nature of eclampsia? What is its etiology? How must we fight against it? All are questions to which a satisfactory reply has not yet been made. One single point is gained, viz., the efficacy of preventive treatment by absolute milk diet (Tarnier). This treatment is addressed to the albuminuria, often the only symptom present. But we know that there may be eclampsia without albuminuria. What will put us in the way of diagnosing this condition? It is necessary to know the etiology of the disease; and upon this point so many theories have been advanced that it is plain that none of them are correct; possibly because eclampsia is due not to one single cause, but a combination of causes, one or the other of which predominates, thus causing the physician to think that he has found the veritable origin of the disease. For example, Hardman²³_{May} advances pyelitis and pyelonephritis as probable causes; Aldrich,²²²_{Feb.} also, thought nephritis to be a determining element in a case in which epilepsy was also a complication. Others ascribe the disease to compression of the urinary apparatus during the development of the uterus. A case of this kind is reported by G. E. Halle⁶_{Sept.}; but Kidd reports a case²⁵⁷_{Dec., '91} in a woman of 24 years, pregnant only four months, who had thirty-five attacks of eclampsia, aborted and recovered. There was never at any time suppression of the urine.

D. Parker¹⁸⁵_{Sept.} describes a class of cases resulting from intestinal putrefaction (constipation, absorption of ptomaines, etc.), which he thinks may play an important rôle, although there may be no cerebral lesion or reflex excitation. Féré⁹⁴ ascribes these convulsions to a neuropathic predisposition, as does H. Sykes.¹⁰⁰³_{May}

Raikes³⁹_{Sept. 1} asks whether the geological constituents of the soil do not play a certain rôle in convulsions. Statistics show that, in Belgium, Sweden, and the States bordering on the Ohio, cases of eclampsia are more numerous. The earth in these regions is exceedingly calcareous. Raikes thinks that perhaps the lime-salts ingested in the drinking-water favor the formation of toxic materials in the blood, which, combined with the nervous condition peculiar to pregnancy, give rise to eclampsia. We do not know whether this theory has any foundation in fact, but that there is a telluric influence is beyond doubt, as at certain epochs of the year light epidemics of eclampsia are common. The exact cause cannot be determined, but the fact exists. It may be due to faulty hygiene

during the wet and cold seasons, among poor women, who furnish most of the cases of this character.

During the past year the microbiology of the subject has been especially studied. Combemale and Cué, of Lille, ³_{Jan. 22} reach the following conclusions: 1. Staphylococci are the direct cause of puerperal eclampsia. Other micro-organisms have been found by various authors, but the staphylococcus is found in cases where the eclamptic attacks follow labor, the eclampsia being considered as a manifestation of puerperal infection. 2. The soluble products of the staphylococcus are eclamptic substances; without bringing to bear any personal experience on this subject, the experimental and clinical researches of other writers show that the toxins produced by the staphylococcus are the same as those contained in the blood of infected lying-in women.

Pathological Anatomy.—Prutz, ²⁹³_{B.13,H.1} from twenty-two personal cases and from a study of the literature of the subject, concludes that diseases of the kidneys cannot be considered as an etiological factor in eclampsia, except in a limited number of cases. Pilliet and Delansorme, ⁷_{Mar.} describe the histological lesions of the kidneys in eclampsia. Tarnier and Chambrelent ⁴⁸_{Nov.} have studied the toxicity of the blood in puerperal eclampsia, arriving at the following conclusions: The toxicity of the blood-serum is considerably increased in this affection, being in inverse proportion to the amount of the serum. This toxicity cannot be attributed to the ingestion of drugs. The degree of toxicity is in direct proportion to the severity of the affection, and may be of value in the prognosis of the disease, as well as in the diagnosis.

Preventive Treatment.—All obstetricians are in accord with Tarnier as to the influence of milk diet. Nevertheless, Arnaud, of Marseilles, ¹⁰⁰_{Feb. 25} recognizing the difficulty of maintaining it absolutely, and therefore its inefficacy, gives the method of Magail, who uses chloral as a prophylactic, either alone or combined with the milk diet. He gives the drug during the attacks, to prevent recurrence of fresh ones. Brown ⁴³_{June} recommends chlorate of potassium, in doses of 10 to 12 grains (0.66 to 0.80 gramme).

Medical Treatment.—Opinions upon treatment are as diverse as those upon the etiology of the disease, one writer disapproving of what another regards as a sovereign remedy. Rogers ²²²_{Feb.} gives the following plan: 1. Sedation—morphine, chloroform, chloral,

etc. 2. Elimination—diuretics, diaphoretics, cathartics, together with dry cups on the region of the kidneys, especially if disturbance of these organs be of an acute type. 3. Antisepsis—most vigorous during labor, especially if induced. McGarvey¹⁵⁵ considers the best treatment to be chloroform associated with chloral. Morphine is useful only in certain cases, and the state of the kidneys must be considered. Veratrum viride combined with chloral seems to give excellent results. To provoke diaphoresis Taylor prefers pilocarpine, declaring morphine to be dangerous, chloral with chloroform being better. Alford¹⁸⁶_{Feb.} employs morphine in hysterical and epileptic forms of eclampsia, veratrum in apoplectic forms, and morphine combined with veratrum in all three. He recommends chloroform, carefully administered.

Reynolds Wilson²³_{May} believes in the efficacy of morphine in cases in which the life of the patient is in danger from the intensity and frequency of the convulsions, and in the absence of deleterious effects upon the process of elimination, especially in cases in which the kidneys are acutely affected.

Strisover¹¹_{No. 6} has treated ten cases of eclampsia by injections of hydrochlorate of pilocarpine, saving all the patients. He considers it a reliable remedy in the disease, cardiac affections not being a contra-indication. Abnormal contraction of the pupils indicates that a spasm is imminent. Kirch-Kelly⁷⁸⁶_{Apr.} has had much success with veratrum viride. Shemwell⁸⁶_{June} has also had success with this drug and with venesection. Duchamp¹⁶²_{Aug.} recommends the use of an œsophageal tube for the administration of chloral, to insure its complete absorption. He advises: first, blood-letting; then inhalations of chloroform; and, finally, chloral; the first of these being often sufficient.

Complications. — Charpentier¹⁰_{p. 335} relates a case of amnesia, lasting twelve months, in a primipara after eclampsia. Proust saw a case in which this accident occurred without any previous affection. Bidon, of Marseilles,¹⁰_{p. 285} reports the case of a woman delivered at term after eleven months of marriage. Eclampsia occurred before labor. She recovered, but lost all memory of what had occurred during her married life, the memory of her life as a girl remaining perfect.

DISEASES OF THE NEWBORN.

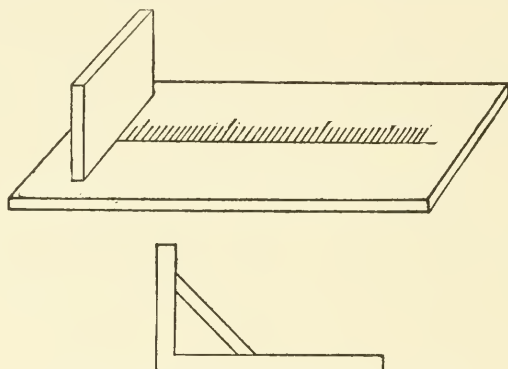
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THIS subject can hardly receive better initial consideration than is afforded in the paper by Ballantyne²_{Feb.13} on disease in early infancy. The difficulties which attend the subject, the inability of the general practitioner to eliminate that portion of his practice, and the advantages which accrue to careful and patient attention are well set forth. While the general physiological laws apply to old and young alike, there are certain peculiarities of function in the newborn, and in those of a somewhat later period, which must be studied and understood, if one would be successful in the care of such individuals. These statements may be illustrated in the functional peculiarities of the liver, the stomach, and the intestines in the newborn. The physiology of the circulation and respiration, the kidneys, and the nervous system should also be regarded in its differences as well as its similarities, when compared with the adult. Anatomical peculiarities in the structure of the newborn must also be considered, for otherwise much that is morbid is liable to be overlooked. An important consideration in this paper relates to infantile mortality, its excess when compared with that of adults, and the necessity of greater care in the returns which are made to the Department of Public Health concerning still-births. Morgagni's observation, that "a wide and almost unbeaten track lies open for the investigation of diseases in newborn infants," deserves to be borne carefully in mind, though made so long ago. The author quotes, as a useful effort in this direction, the recent paper of Herbert R. Spencer, on "Visceral Hæmorrhages in Newborn Children."

Crandall's paper,¹_{June 18} on the "Management of the Newborn Infant" contains timely hints and warnings. He speaks of the necessity of douching the maternal vagina in cases in which there is the slightest suspicion of infectious disease, the danger to the

fœtus in the use of ergot *ante-partum*, the possibility of paralysis in the injudicious use of forceps, the conditions attending asphyxia in the newborn, and the means of relieving this accident (some of the latter will be referred to in detail hereafter), the care of the umbilical cord, bathing, inspection of the infant's body, the proper clothing for the newborn, and the care of various disorders which are incidental to the earliest period of life. The paper is an exceedingly valuable one, in reminding the practitioner of important points which often fail to receive that attention which they deserve. The body-weight and stature of newborn infants have been considered by Miwa¹¹²_{Aug.} in a series of statistics, from which the following have been selected. The accompanying figures represent the instrument with which the measurements were taken.



INSTRUMENT FOR MEASURING BODY-WEIGHT.
(*Sei-I-Kwai Medical Journal.*)

The author's practice was in Japan, and the figures were collected during a series of several years.

The estimates were made between the first and fifth days of life, upon infants born at term. Twins were excluded. Average for male infants: height, 448 millimetres; body-weight, 2865 grammes ($5\frac{3}{4}$ pounds); circumference of head, 331 millimetres. Average for female infants: height, 481 millimetres; body-weight, 2862 grammes ($5\frac{3}{4}$ pounds); head circumference, 334 millimetres.

Another observer has given the following measurements: males, average height, 504 millimetres; weight, 3062 grammes ($6\frac{1}{4}$ pounds); circumference of head, 329 millimetres. Females, average height, 473 millimetres; weight, 2714 grammes ($5\frac{1}{2}$ pounds); circumference of head, 328 millimetres.

It was thought that the difference in the results of the two observers was due to the fact that in Miwa's tables the measurements were of children who were the offspring of primiparæ, while in Sakaki's they were the offspring of multiparæ. The average of the two tables is as follows: males, height, 496 millimetres; weight, 2963 grammes ($7\frac{1}{2}$ pounds); circumference of head, 330 millimetres. Females, height, 477 millimetres; weight, 2788 grammes ($7\frac{1}{4}$ pounds); circumference of head, 331 millimetres.

Congenital Amputation in the Newborn.—This accident is sufficiently rare to call for record of all available examples. Bar³_{Apr. 27} has reported a case in which such an accident occurred: the mother was a secundipara, the first child having been normal in all respects. The reported case was that of a female weighing 2800 grammes ($5\frac{5}{8}$ pounds). On the left lower limb, at the junction of the lower fourth of the thigh with the portion above it, was a sulcus dividing the soft parts as far as the aponeurosis. The sulcus was shallow posteriorly and very deep anteriorly. The edges of the anterior sulcus were freshened and sutured; perfect union resulting. On the same extremity there was a linear depression along the dorsal aspect of the toes, but no bony injury. On the right side the first four toes were atrophied and confined in a mass containing rudimentary phalanges. The fingers of the right hand were similarly deformed with the foot. These accidents were caused by processes from the chorion, which had become attached around the extremities.

INCUBATION.

Hirst¹⁴⁴_{Feb.} reports a successful case of incubation, in a baby which weighed, at birth, 2 pounds and 15 ounces (1462 grammes). Five weeks later it weighed 4 pounds and 10 ounces (2302 grammes), and was in a healthy and apparently normal condition. The temperature of the incubator ranged from 85° to 90° F. (29.3° to 32.2° C.), and the child was nourished on human milk. Hirst thought it was sufficiently developed to warrant its removal from the incubator to a crib.

Bacteriological investigations upon the cadavers of newborn infants have seldom been made. A report of such investigations by Marfan and Nanu¹¹⁸_{July} is of especial interest, from its novelty.

The authors conclude that such examinations made from twenty-four to thirty-six hours after death, especially when made in the winter, are likely to give results which are valuable. The subject is yet too fresh for decisive conclusions. Pathogenic microbes were found in fluids which seemed normal, and in tissues which seemed healthy.

In most of the infectious diseases which were thus studied, it was thought that death was due to septicæmia, the microbes having been distributed through the system from a primary focus of infection. The result may have been reached so rapidly that no anatomical alterations were appreciable. In cases which died from capillary bronchitis and broncho-pneumonia, the pneumococcus, pneumobacillus of Friedländer, and staphylococcus pyogenes albus were found; and the bacillus coli communis was found in cases of infectious diarrhœa. With the latter were also found the streptococcus and staphylococcus pyogenes aureus.

ALIMENTARY CANAL.

Stomatitis, resulting from epithelial pearls has been described by Garrigues,⁹_{Oct. 1} an epidemic of this disease having occurred in his service at Maternity Hospital (Blackwell's Island). Fifty-seven cases (including five in private practice) were observed, the phenomena appearing at birth, or within a very few days subsequently. Two types were apparent. In one, a small white spot appeared in the median line, at the junction of the soft and hard palates; this spread symmetrically, and in three days covered the soft palate. In the other, the white spot appeared at the junction of the right tonsil and palate, followed in three days by a white streak in the median line, extending from the hard palate to the root of the uvula and uniting with the original sore. The left side of the soft palate and the palatal arches of the same side were finally included.

The pearls constituting this form of stomatitis were small, white, globular tumors, varying in size from a pin-head to a millet-seed, and numbered from one to five in each case. They were hard upon the outside and soft within. They were imbedded in the mucous membrane, and were usually covered with condensed sub-epithelial connective tissue, which merged into the surrounding tissue without any distinct line of demarkation. They were com-

posed of epithelial cells, like those of the mucous membrane of the mouth.

Epstein has found them as early as the eighth week of foetal life, and believes that they are due to a kind of invagination of the epithelium. It was Epstein who named them "epithelial pearls." They do not usually require much treatment, and will, in most cases, disappear spontaneously, if left alone.

Gonorrhœal stomatitis was observed in five cases by Rosinsky,¹⁴⁷ May in the newborn. A typical case is as follows: The mother suffered with gonorrhœa. On the thirteenth day after birth the baby had a yellowish-white discoloration on the roof of the mouth, and a patch as large as a three-cent piece on the tongue. The next day there was evidence of pus, and the surrounding mucous membrane was very red. The following day a portion of the diseased mucous membrane became detached, and it was found to contain gonococci and pus-cells. In ten days all traces of the disease had disappeared.

Intussusception in a child 17 days old was seen by Ruff.⁹ Mar.12 Previous to this accident, there had been diarrhœa. The tumor was on the right side, movable, and kidney-shaped. It caused vomiting, hiccough, and severe pain. It was partially reduced under chloroform; after which, injections of air and water were used in the hope of completing the reduction, but without success. For seventeen hours the infant was apparently in a dying condition, when the obstruction yielded spontaneously. The subsequent recovery was uneventful.

Maygrier and Chaillon¹⁹⁴ June report a peculiar case of gastrointestinal infection in a child who nursed from the breast of a mother suffering with lymphangitis of the right mammary gland. The lymphangitis appeared when the child was 8 days old. It gradually grew weaker and died on the fourteenth day after birth. The autopsy showed suppurative pylephlebitis with metastatic abscesses in the nerve-centres. Such cases teach the danger of allowing a child to nurse from a mother who suffers with suppurative disease. The possibilities of direct infection, in such cases, are too great to warrant such a risk.

A case of acute peritonitis is reported by Ghika,⁷ May the peritoneum post-mortem showing an abundance of fibrin and lymph. There was also cirrhosis of the liver and sclerosis of the testicles,

the lesions pointing plainly to syphilitic antecedents. A second case is reported by Falkenheim and Askanazy,¹³ in which the disease began on the fifth day of life and had a fatal ending on the twenty-third. When the abdomen was opened an abundance of gas escaped; there were extensive deposits of fibrin and, near the beginning of the descending colon, a perforation, which probably occurred about the time of birth, judging from the progress it had made toward healing and the character of the intestinal contents in its vicinity. Cases similar to this one have also been described by von Dubler and Genserich.

A case of imperforate rectum and anus is recorded by W. Berry,⁸⁰⁶ life continuing eighteen days with an imperforate rectum. It had taken food and there had been no vomiting. Death occurred three days after the performance of inguinal colotomy. A case is reported by Heaton² in which an operation was performed on an infant for imperforate anus and fæcal, penile fistula. The rectum ended three-fourths of an inch above the anal *cul-de-sac*. The rectum was opened and its end stitched to the incision at the anal site. The fistula extended from the anterior surface of the rectum, half an inch from its termination, to a point on the lower surface of the penis, three-fourths of an inch from the end of the glans. It did not involve the urinary channel, and, after the operation on the rectum, it closed.

A very interesting paper descriptive of the relative advantages and disadvantages of the various methods of treating congenital anomalies of the rectum and anus is published by Anders.²¹ He also gives statistics pertaining to this subject, collected at the Prince Oldenburg Children's Hospital, from 1870 to 1891, which may be taken as a fair index of the status of this subject in general. There were 74 cases of congenital fault of the rectum, 58 being in boys and 16 in girls. Of atresia ani there were 8 cases; atresia recti, 54; anus perinealis, 1; anus vesicalis, 1; anus urethralis, 4; anus vaginalis, 6. The following operations were performed: Proctotomy, simple incision, where there was closure of the skin, 2; mortality, *nil*. Proctoplasty, 69; mortality, 49 per cent. Colotomy, 3; mortality, 100 per cent. In the first twelve years there were 16 deaths in 22 operations; in the next five years, 11 deaths in 21 operations; in the last five years, 10 deaths in 31 operations.

LIVER.

Icterus in the newborn, a condition which frequently presents itself, is always interesting from the possibilities which are associated with it. Baummel,^{348 No.16} has written a lucid article upon the subject, in which he refers to this condition as the expression of a lesion or a functional disorder of the liver, and which may, therefore, be symptomatic or idiopathic. As causes he mentions difficult labors, in which there is severe and prolonged pressure of the fœtus within the abdomen and congenital weakness. A third theory of pathogenesis is analogous to that which he has propounded concerning the so-called biliary pneumonia. The latter is located at the base of the right lung, and the sides of the diaphragm, being partly immobilized in the effort to avoid the pain caused by respiration, the liver is not sufficiently compressed, the bile is too feebly forced into the hepatic canals, and the result is stasis and then penetration of bile into the blood-current. Now, with reference to the icterus, the lung, like the other organs in feeble children, is weak, and the thoracic expansion incomplete. There is pulmonary atelectasis, whence comes a certain degree of immobility of the diaphragm, with feeble contractions of the liver and resulting icterus. The treatment should simply aim to sustain the vital forces as effectually as possible. An instance of the possible fatality of this condition is narrated by C. T. Gamble.^{199 Sept.} The child was born at term, of average weight, and in apparently good health. Within an hour purpuric spots appeared on the face and head, then a yellowish discoloration of the entire body, and in nine hours coma was followed by death. This was the seventh child in this family which had perished from this condition. Unfortunately, no autopsies had been made; so the cause cannot be stated.

Szendeffy^{81 Nov.7,91} found, in an analysis of the histories of one hundred newborn infants, that polyuria was a constant symptom in those who suffered with icterus, and that it was also accompanied with an excessive loss of body-albumen.

A study of the quantity of urine passed during the first few days of life was made by Berti in the persons of twenty-eight infants, of whom twenty-four were strong and born at term, two were feeble and born at term, and two were premature. All were suckled by wet-nurses. The urine passed per kilogramme (2½ pounds) of body-weight was as follows:—

First day after birth, . . .	15 grammes ($3\frac{5}{8}$ drachms).
Second day after birth, . . .	30 grammes ($7\frac{3}{8}$ drachms).
Third day after birth, . . .	44 grammes ($1\frac{1}{8}$ ounces).
Fourth day after birth, . . .	60 grammes ($1\frac{7}{8}$ ounces).
Fifth day after birth, . . .	71 grammes ($2\frac{1}{4}$ ounces).
Sixth day after birth, . . .	83 grammes ($2\frac{3}{8}$ ounces).
Seventh day after birth, . . .	91 grammes ($2\frac{7}{8}$ ounces).
Eighth day after birth, . . .	81 grammes ($2\frac{3}{8}$ ounces).
Ninth day after birth, . . .	88 grammes ($2\frac{3}{4}$ ounces).
Tenth day after birth, . . .	76 grammes ($2\frac{3}{8}$ ounces).

The quantity passed during the day was greater than that at night.

RESPIRATORY APPARATUS.

The treatment of asphyxia in the newborn has called forth much ingenuity on the part of medical practitioners, and a number of excellent methods have been devised. Probably some of them never get far beyond the immediate circle of those who devise them. Among the most recent contributions to the subject is that of Forest.⁵⁹
Apr.9 He considers two classes of cases,—those in which resuscitation can be effected by simple measures which excite reflex action, and those that require ventilation of the lungs by artificial respiration. In the first class the muscular tonus is not lost and there is ready response to the irritation of slapping, hot and cold plunge, etc.; these are the cases which Lusk terms “livid asphyxia.” In the second class, or pallid asphyxia, the reflexes are lost and the maintenance of heat and artificial respiration is imperative. Forest criticizes the three methods in common use for introducing air into the lungs of an asphyxiated baby, namely, the methods of Sylvester and Schultze, and that which introduces a catheter into the trachea or insufflates by the application of mouth to mouth. Schultze’s method is thought to be too rough; the swinging movements may cause a fatal loss of heat to the child, and the inspiratory shock may be so severe as to cause lesions in the anterior mediastinum. Sylvester’s method is safer and as effective as Schultze’s. The insufflation method is not easy of performance. The catheter may injure the vocal chords in its passage through the larynx. If it fits the tracheal opening snugly, the air cannot readily get out from the lungs; besides, the method makes no provision for expanding the chest by raising the ribs and sternum, but only by the pressure of air from within. The method which is proposed by Forest is as follows: 1. The child should be

laid on its face a moment, with its head and thorax lower than its pelvis, and quick but not violent pressure should be made upon its back. This is to expel any fluids that may be in the air-passages. 2. The child should be seated in a pail or tub containing six or eight inches of water as hot as can be borne by the physician's hand. One of the physician's hands supports the child's back, the neck resting between the thumb and forefinger. The child's hands, with palms to the front, are held with the physician's other hand. 3. The child's hands are carried upward until it is suspended by the arms, the buttocks just clearing the bottom of the pail. As the head falls back, mouth to mouth insufflation is practiced. 4. The child's arms are then lowered until the hand of the physician holding them rests across the front of the child's thorax. The body of the child is then doubled forward, its thorax is compressed between the physician's hands, and thus the air is expelled and the movements completed. These movements should be carried out at the rate of forty per minute, and should be continued until the child has revived or until the stethoscope or the ear at the child's chest notifies that the heart has ceased to beat.

A singular instance of the vitality of some infants is shown in a case narrated by J. L. Bass, ¹⁹⁹_{May} in which a primipara was said to have been in labor five days before she was seen by him, and during the last two days the physician, who called him in consultation, had been with her constantly. With not very great trouble the child was delivered with forceps. It was asphyxiated, but by means of very active movements of artificial respiration for sixty-four minutes, breathing was induced, and in ten minutes more it was breathing so well that the artificial respiration was discontinued. The particular method which was used is not mentioned, but it is interesting and noteworthy that after so long a labor, complicated, too, by an obstetric operation, the child's life was saved.

E. L. Crutchfield, ¹²¹_{Sept.} is an advocate for Harvey L. Byrd's method of artificial respiration, which was proposed in 1870. He believes that its simplicity is a special advantage which it enjoys over the Schultze method, while, as it acts in accordance with the principle of diaphragmatic respiration, it is to be preferred to the methods of Sylvester and Marshall Hall. By this method (Byrd's) the physician places his hands under the middle portion of the

child's back, with their ulnar borders in contact and at right angles to the spine. With the thumbs extended, the two extremities of the trunk are carried forward by gentle but firm pressure, so that they form an angle of 45 degrees with each other in the diaphragmatic region. Then the angle is reversed by carrying backward the shoulders and the nates. By this method Byrd succeeded in effecting resuscitation when all other means had failed, and the advocate of the method (Crutchfield), whose experience with it had also been most favorable, wondered why it had obtained so little mention in obstetrical works.

Infantile Respiratory Spasm.—This condition, which is also known as congenital laryngeal stridor, is one which may be considered somewhat rare, although a number of able writers have contributed to the subject in recent times. A very good paper, and quite comprehensive, has been written by John Thomson,³⁶_{Sept.} five characteristic cases being narrated in detail; three were boys, and two girls. In none of the cases was there a family history which would account for or suggest the trouble. In three of the cases the stridor was observed immediately after birth; in the others it came within a fortnight from birth. In severe cases the stridor increases in severity for two or three months, and then there is gradual improvement. The stridor begins as a croaking noise, and ends in a high-pitched crowing sound. Aside from this peculiarity, the child's voice may be the same as usual. The throat and larynx in the cases narrated were nearly normal, so far as they could be studied in infants so young. There was no cyanosis, and no evidence that the infants were in distress. The sounds were intensified by anything which tended to excite the children; they continued during nursing and when the nostrils were closed, and ceased during sleep. The cause of the sounds is probably spasmodic muscular contraction, and the condition is quite different from that which obtains in laryngismus. Thomson regards it as a central functional disorder.

A similar, if not an identical, condition is described by Löri²³_{Nov.} as spasm of the glottis, and he believed it was most frequently seen as an accompaniment of rachitis and disorder of the digestive organs. He found that the spasm could be broken by allowing a drop of a 1-per-cent. solution of cocaine to pass through the nares to the larynx. He had observed twelve cases of this affection.

Laryngismus stridulus does not often occur in newborn infants, but Bowen⁹_{Apr.16} has reported a fatal case occurring in an infant 6 days old. The child seemed perfectly well the first five days of life, and the umbilical stump had dropped off. On the sixth day there was difficulty in nursing, dyspnœa, and rhinitis. General tonic convulsions quickly followed, the spasms recurring at short intervals, and, after a few hours, the child died. All efforts at treatment in this case, including the administration of chloroform by inhalation, were entirely futile. Pulmonary syphilis in the newborn has been reported by Audebert¹⁸⁸_{Feb.23} in a case which was carefully studied. The mother of the child was 18 years of age, and at the time of her labor suffered with general œdema and albuminuria. The child was feeble, weighed 2500 grammes (5½ pounds), and died asphyxiated a few minutes after birth. The mother denied that venereal disease had ever been present, but a number of enlarged glands were suspiciously significant. Post-mortem examination of the infant showed no lesion of the liver, peritoneum, or intestines. The lungs were retracted, some of the alveoli were distended, and on the surface were about twenty whitish nodules, of rather firm consistency and as large as a small olive. These lesions were considered analogous to those which are caused by syphilis in the liver. Moussous, in commenting upon this case, compared it with the white pneumonia of hereditary syphilis described by Parrot. Inasmuch as the nodules were hard and not softened at their centres, he should regard this case as an illustration of the sclerous and not the gummy form of congenital syphilis.

The practical value of bacteriological investigations was well demonstrated at the gynæcological clinics of Heidelberg, where it is the custom to place the newly-delivered women on straw mattresses, which are subsequently washed and filled with fresh straw. Gärtner⁶⁴_{July} was one day surprised, on visiting the clinic, to notice a musty odor. He also noticed elevations of temperature in the patients, for which no satisfactory reasons could be given. Eight infants and one mother were affected. Bacteriological investigations revealed streptococci and staphylococci in the straw, the bed-clothes, the air of the clinic-room, the curtains, and the dust on the wall. They were also in the mucus of the trachea and bronchi in five infants who died of broncho-pneumonia.

Cultivation of the microbes and experiments with rabbits resulted in erysipelas and abscess in some of them, and in fatal pneumonia in cases in which the culture-fluid was injected into the lung.

DISEASES OF THE SKIN.

Bar¹⁹⁴_{No.1} describes the case of a young infant upon whose scalp was a number of small nummular patches eight or ten millimetres in diameter. The hair was wanting in the areas occupied by the eruption, and the surrounding skin was of a bright rose-color. This child also suffered with double club-foot (talus), and the hands were small and thin. It was supposed that the deformity of the extremities and the cutaneous lesion had the same cause, which was believed to be arrested development due to compression of the amnion.

Violi²³²_{Jan.15} reports an eruption of pemphigus on the hands and feet of an infant 2 days old. This child was suffering with congenital syphilis, and at each radio-carpal articulation there was also a gumma of considerable size. An epidemic of pemphigus neonatorum was seen by Almquist,²_{Aug.20} at the Lying-in Hospital at Göteborg. Of 216 children in the hospital, 134 were affected with this disease. Almquist investigated the disease bacteriologically, and, in the 9 children upon whom the investigation was made, the same coccus was found in large numbers in the bullæ. This coccus resembled the staphylococcus aureus and grew readily at ordinary house temperature. Two inoculations with pure cultures were made by the author on his own arms, and after a short period of incubation there resulted redness and then typical pemphigus bullæ, which healed without constitutional disturbance.

Raymond and Barbe⁷³_{Jan.23} describe a case of dermatitis exfoliativa in an infant, which appeared on the tenth day of life and gradually (five weeks) spread over the entire body. It was characterized by diffuse redness, more intense in some places than in others, and by foliaceous desquamation. Small vesicles also appeared. The eruption caused itching, but did not interfere with the patient's general condition. There were no lesions in the mouth, and the hair fell in certain spots.

An interesting case of small-pox in the fœtus is reported by Lambinon.¹⁰⁹_{Sept.} The mother was 24 years old, and was a primipara. She became pregnant in October, 1891, and in the spring

of 1892 became a victim to small-pox, which was then epidemic at Liège. This was in the sixth month of her pregnancy. She had a characteristic eruption of variola discreta. She was carefully nursed and recovered without pitting, but after her sickness she felt no more foetal movements. Labor came on in the seventh month of her pregnancy, and she was admitted to a lying-in hospital. The feet presented, the membranes were ruptured, and the child was extracted. It measured thirteen inches in length and was badly macerated; there were small-pox pustules on its back, arms, and thighs. The face was not attacked, as is the rule in foetal small-pox. The placenta came away in ten minutes after the delivery of the foetus, the uterus contracted badly, and an intra-uterine injection of hot water and a hypodermatic of ergotin were administered. The mother made a good recovery and left the hospital on the ninth day. Charpéntier says that small-pox in the foetus is of rare occurrence. This is another illustration that microbes can pass from mother to foetus, the placenta not being a barrier to such passage. It has been proven that pneumonia, typhus fever, glanders, and malignant pustule may be communicated in this way. Malvos and Birch-Hirschfeld have demonstrated that hæmorrhages and structural changes in the placental tissue favor the passage of bacteria from mother to foetus.

An interesting paper by Saint-Philippe ²⁵July discusses the avenues of infection in the newborn, with special reference to the skin. The mortality of infants between 1 day and 1 year of age is 20.5 per cent., which is the same as that of aged persons from the eightieth to the eighty-fifth year. Of course, in certain locations the mortality among infants is very much greater than 20 per cent., and the surroundings may be very satisfactory, from a hygienic stand-point, at the same time. Thus, in the infants' department of the Hospital of Bordeaux, which is one of the most completely equipped in France, where two hundred and two infants were received in 1891, there were eighty-two deaths, most of them during the first few days of life, from syphilis, œdema, sclerema, etc. First in importance, of the avenues for the entrance of infection, is the umbilical wound, which too often fails to receive the attention that such a wound, so directly connected with vital centres, should receive. One-half of the infants which have come under the author's observation have still retained traces of suppu-

ration at the umbilicus at the twenty-first day of life. The swelling, erythema, inflammation of the neighboring skin, lymphangitis, phlegmon, gangrene, which are so common with umbilical wounds, testify as to the evil possibilities in this connection. The author attributes the great majority of cases of severe icterus in the newborn—hæmorrhagic icterus with bleeding from the renal tubules, acute fatty degeneration of the liver, melæna, and hæmorrhage from the cord—to a pathological condition of the umbilical wound. Evidences of infection are also to be seen in the ulcerations which are often encountered on one or both of the malleoli, and upon the heel in the newborn. They occur with infants whose circulation is feeble, and especially in those with whom hygienic attentions are deficient. The wounds following erythema, vesication, the eruptions of variola, varicella, and vaccinia are also avenues for the entrance of infectious material. Impetigo is an example of this kind. All these facts suggest the importance of asepsis in the treatment of the newborn, if a condition of health is to be maintained.

DISEASES OF THE BONES.

With reference to the causes and treatment of diseases and deformities of the bone-structures in the newborn, Churchill ¹⁵⁸_{E.12, B.5, 6} very justly remarks that an increase of intra-uterine pressure upon the fœtus, while hindering the growth and development of the joints, must be also the primary cause of club-foot. The harmful pressure is not always due to a deficiency of liquor amnii; there may also be reflex irritation of the uterine branches of the hypogastric plexus, causing spasmodic contraction or increased tension in the uterine muscle, and consequently restriction or interference with the movements of the fœtus during its development. These remarks seem to be justified, at least in pes varus, with its oblique direction of the neck of the talus and compression of the internal cuneiform and scaphoid. These deformities, with the shortening of the tarsal ligaments, indicate operative interference with a corrective apparatus at the earliest possible moment. At the same time massage of the extensor muscles will cause their contraction and will strengthen them. The paresis of the antagonistic muscles may be a primary condition, or it may be caused by a long-continued inactivity during incarceration in the position of supine contracture. The appropriate methods of treatment are considered in connection

with the section on orthopædic surgery. Craniotabes or craniomalacia, a condition which is not uncommon with rachitic children, and which was first described by Elsässer in 1843, forms the subject of the Paris thesis of Paley.^{48 July} His investigations are based upon a study of 62 cases. Elsässer believed this condition was not only associated with rachitis, but that it was the cause of convulsions and spasm of the glottis, and consequently was associated with a grave prognosis. Since his article was written, the subject has been further investigated by Hauff, Lasègue, Vogel, Broca, Renaut, and Parrot, the latter author considering it as directly dependent upon syphilis. With this opinion Paley entirely disagrees, and, after analyzing the opinions of Elsässer, reaches the following conclusions: (1) craniotabes is a frequent affection of early infancy, and is almost entirely confined to that period; (2) it is not intimately related to rachitis, many infants who suffer with it being non-rachitic; (3) it does not give rise to convulsions nor to spasm of the glottis; (4) it is not related to hereditary syphilis; (5) it is a benign affection, is usually recovered from, and is not a source of serious danger. Comby,^{868 Apr. 9} who has written a paper based upon the observation of twelve cases of craniotabes, reaches conclusions practically identical with those of Paley.

DISEASES OF THE NERVOUS SYSTEM.

Among the most fatal of the diseases of the newborn may be mentioned trismus and tetanus. There seems to be no need of the double nomenclature, for the conditions are identical, and their identity with tetanus, in the adult, seems also established, especially since the infectious origin of the disease has been determined. Nicolaier^{1 Jan. 9} has found in superficial soil a bacillus with which tetanus may be produced in animals by inoculation, and Rosenbach has found a microbe of similar appearance and characteristics in the secretions from a wound of a tetanus patient. Kitasato has isolated the germ and produced tetanus by inoculation with pure cultures from it. Whether this is the only germ which will produce the disease is as yet undecided. The bacillus of Nicolaier is found in many places, but especially in tropical countries. The digestive fluids do not kill or alter the germ, but a much larger dosage is required to produce the disease by ingestion into the stomach than by inoculation. The disease develops best

in connection with an open wound, and its frequency in newborn infants is associated with neglect of the umbilical wound. Hence the importance of cleanliness and antisepsis in the treatment of the umbilicus. In Iceland, the disease has prevailed extensively for many years. In St. Kilda, one of the Hebrides Islands, it is also very prevalent. It usually begins in the first week of life, the convulsions increasing in frequency and severity until the child succumbs. Death usually takes place within twenty-four hours from the first attack. The contraction of the facial muscles is such that nursing is impossible. J. A. French ⁸⁵⁶_{Nov., '91} mentions a case in which the umbilical stump was torn off the morning after birth, inflammation of the umbilicus quickly following. This is an instance in which a traumatic cause seems efficient in producing the disease. French mentions, as possible causes, irritation of the skin, as by exposure to cold or a very hot bath. J. P. McClendon ¹⁹⁹_{Sept.} narrates a case in which the disease developed two days after the reduction of a large congenital umbilical hernia, in which considerable force seems to have been required. Aside from an infectious origin, therefore, it seems very probable that the disease may be caused by traumatic influences, especially in weak, poorly-developed infants. Treatment usually is of little avail in the well-marked cases. Sedative and relaxing agents should, of course, be tried, including the bromides, opium, chloral, nitrite of amyl, and chloroform. Bérényi ⁶⁷³_{Feb.} reports a case which was successfully treated with sulphonal. The infant was attacked on the fifth day from birth, and in five hours had five paroxysms. Rectal enemata containing 3 grains (0.20 gramme) of sulphonal were administered, and the drug was also given by the mouth. The attacks diminished in intensity and frequency immediately after the treatment was begun. During six days the child received 150 grains (9.82 grammes) of sulphonal without any unpleasant or toxic effects from the drug. The successful treatment of this case teaches that recovery is sometimes possible if active treatment is begun as soon as the first symptoms of the disease are apparent.

Closely related to the disease which has just been described, is eclampsia, which may be due to peripheral irritation of different characters. Probably a very common cause consists in the irritation of the glans penis by a tight prepuce. A case is narrated by Fischbach, ³⁴_{Sept. 6} in an infant 14 days old. There were general tonic

convulsions, recurring every half-hour and lasting five minutes. When the penis was examined, the prepuce was found to be glistering and œdematous, and the narrow opening prevented its retraction. Forcible dilatation was practiced, the foreskin was retracted, and a hard mass of sebaceous matter was found about the corona. The parts were cleansed with lead-lotion, and complete cessation of the convulsions quickly resulted.

Barthélemy ¹²⁷_{Apr. 12} narrates a case in which the convulsions had a different cause from the foregoing. The child was 6 weeks old, had a large head, with widely-distended fontanelles, but gave no history of eruptive disease, bronchitis, or intestinal worms. It was nursed at the mother's breast. For the first few days of life it had been healthy, but soon became nervous and excitable, and had epileptiform convulsions, followed by depression. The condition was thought to be meningitis or acute hydrocephalus, but there was no paralysis, persistent contracture, constipation, traumatism, syphilis, or tuberculosis, and the parents were healthy. It was thought that the case was one of so-called essential convulsions. There was a possibility of malaria, of hyperæsthetic condition of the mother, or of indigestion on the part of the infant. A wet-nurse was obtained, no medicines were given, and the child was kept as quiet as possible in a darkened room. Then suitable doses of bromide of potash and chloral hydrate were given, and the child began to improve. It was thought, however, that this was a case in which epilepsy might develop.

Chaumier ³_{Nov. 2, '91} believes that certain cases which are diagnosed as eclampsia in the newborn are more correctly to be regarded as hysteria, the mistake arising from the great frequency of eclampsia in early infancy and childhood. The mildest degree of hysteria in the newborn is manifested by repeated attacks of anger without sufficient cause, with spells of crying. A more decided degree is manifested by violent movements of the limbs, with turgescence or, occasionally, pallor of the face; there may be trembling of the body with or after the attacks. The movements of the body may be very violent, consciousness not being lost for an instant. When the attack is yet more violent, the child suddenly stops crying and loses consciousness; the body becomes rigid and the mouth is wide open, or the body may be quite limp and no contracture be present. The attack may be even more

severe,—consciousness being lost for no apparent cause, the body being rigid and the eyes upturned; at the same time there may be shaking in the contracted limbs, or irregular movements, or the whole body may be limp. These attacks may be isolated, or they may occur several times in a day. They are often mistaken for meningitis. It is almost impossible to determine, in these cases, whether there is hemianæsthesia and hyperæsthesia even when they are present; but contracture and paralysis, and also absence of the ocular and pharyngeal reflexes, should not be overlooked. Hysteria in the newborn should be differentiated from epilepsy, acute and chronic meningitis, athrepsic encephalopathy, and adenoid tumors of the pharynx. The prognosis of hysteria in the newborn should not be more serious than it is in adults, and treatment will be more successful if begun at once than if it be deferred until a later period of life has been reached.

Comby¹¹⁸_{Oct., '91} narrates eight cases of pseudoparalysis in the newborn, arising from syphilis. It began with paralysis of one or both upper extremities, without fever, convulsions, or trophic disturbances. The lower extremities were only exceptionally paralyzed. In most of the cases there were evidences of congenital syphilis, coryza being especially noteworthy. In the long bones there were hyperostoses at one or the other end, and separation of the epiphyses with crepitus. The treatment consisted in sublimate inunctions, with mercurial baths. In four of the cases there was a cure of the paralysis in from nine to fifteen days. In one case in which all four extremities were involved, death resulted.

Paralysis in the newborn, from its surgical aspect, has been considered by R. W. Lovett,⁹⁹_{July 7} attention being particularly drawn to those paralyzes of the arm which are the result of violence at the time of birth. These are not the only paralyzes resulting from difficult labor, for there may be hemiplegia or spastic paralysis due to cerebral injury or cerebral or meningeal disease, or paralysis of the legs due to injury to the spinal cord resulting from traction upon the legs. There are also the facial paralyzes, but they are generally transient. Of paralyzes of the arm, Lovett had been able to make a study of nine cases. The condition is apparent immediately after birth; the paralyzed arm hanging powerless at the side, with the palm turned backward, and, possibly, with tight flexion of the fingers. Movement of the fingers

may be possible, but the arm cannot be used to any extent. Difficult labor is not always the exciting cause. In two of the nine cases analyzed, the labor was easy. The paralysis is directly due to injury of the brachial plexus, and the irritation received may cause neuritis, with resulting fatty degeneration of the nerves. The injury may be the result of long-continued pressure in a tedious labor, or it may be caused by the obstetric forceps. The muscles most affected are the deltoid, biceps, supinator longus, and supra- and infra- spinatus. Gowers thinks that the paralysis is most frequently due to injury of the branch from the sixth cervical nerve to the brachial plexus. The disability produced by an injury of this kind is more or less permanent; there is atrophy of the muscles; the bones do not develop well, and the member is, on the whole, an imperfect and defective one. This condition must be differentiated from fracture or dislocation of the shoulder, from hemiplegia occurring before, during, or after labor, and from infantile paralysis, the latter being very rare in the first months of life. The treatment should consist in the long-continued use of the faradic current, and also a supporting bandage which will relieve the drag upon the muscles.

INFLUENZA.

J. Ringwood ²²_{May 11} seems to think that there is a relation between the poison of influenza in a pregnant woman and tight prepuce in her infant. He reports that he was obliged to operate on four infants on one and the same day for this disorder, while the last epidemic of influenza was prevalent. [This was interesting as a coincidence; it was probably nothing more than that.—ED.]

TUBERCULOSIS.

Pinard ⁴⁸_{Nov., '91} has experimented on premature and tuberculous infants in a novel way; that is, by injecting blood-serum from the dog. His experiments were suggested by those of Richet and Héricourt. His first attempts were with a cubic centimetre (16 minims) of serum, which quantity was injected into each of two premature infants born of tuberculous mothers. This injection, being well tolerated, was repeated in seven days, again in five days, and again in two days. The mothers of the two infants were in the last stage of tuberculous cachexia at the time of accouchement,

one dying nine and the other seventeen days subsequently. The autopsy showed that they had tuberculosis, and nothing else. One of the children weighed 2600 grammes ($5\frac{1}{4}$ pounds) at birth, and one month later, when it was removed from the hospital 2680 grammes ($5\frac{3}{8}$ pounds). The other infant weighed 1530 grammes ($3\frac{1}{8}$ pounds) at birth; on the ninth day it weighed 1210 grammes (2 pounds), and when it was removed from the hospital 1520 grammes ($3\frac{1}{16}$ pounds). The effect, which was noticeable in these and in nineteen other cases, was almost uniformly a beneficial one, the serum probably serving to excite nutrition. Further experience with this method of treatment taught the author that he could use it more freely, with perfect safety. His injections were therefore made at more frequent intervals than at first, and in larger quantity. One child received 25 injections of 2 centimetres (32 minims) each in forty-one days. Four of the infants which were treated died; the remaining seventeen lived. The method is believed to be a useful adjunct to gavage and the couveuse for feeble infants. The author's conclusions are: 1. Injections of dog-serum in the newborn, if practiced with antiseptic precautions, and in proper doses, are not attended with accidents. 2. They act as a powerful tonic for congenitally feeble infants. The author does not know whether the serum acts directly or indirectly.

THE UMBILICUS.

The treatment of the umbilicus in the newborn is a matter of vital importance. To check hæmorrhage and prevent hernia and sepsis are the three principal indications. It would seem as if there were no good excuse for the occurrence of either of these accidents wherever an intelligent physician is at hand. The method of treating the stump is susceptible of endless variation. In a word, we should say: use no force; keep it dry; keep it out of contact with the body. The advice to strip off the jelly of the stump at the time of ligation is not good advice. If it were generally followed, it would inevitably lead to injuries to the structures about the navel. We do not mean that there are not men—many of them, too—who are able to do this operation without harm to the infant. With regard to tying the cord, the time for doing it is a matter of choice. I prefer to wait a few minutes after the delivery of the child before ligating, unless it is necessary

to separate the child at once. I prefer to make but a single ligation, with strong and dry catgut, and about two and one-half inches from the body. The placental end of the cord should be allowed to bleed, if there is any disposition to do so. I have never seen bleeding continue more than a minute or two, and it diminishes the volume of the placenta. If the vessels of the stump continue to ooze after ligation *en masse*, they should be grasped with torsion-forceps and tied separately. Szendeffy⁸¹_{Nov. 7, '91} thinks it a matter of indifference whether the cord is tied immediately after birth, or after a few minutes' delay. If more blood is carried into the child's body than its blood-vessels can comfortably hold, it will necessarily lead to transudation from the vessels. With reference to material for dressing the stump, George A. Stuart²³⁵_{Dec., '91} uses bismuth,—a good material, antiseptic, and favorable to quick drying of the stump. It is a rather expensive material, however, and no better than plaster of Paris, which was recommended a year or two ago by Sutughin. In fact, if the stump and its surroundings are covered with this, and protected by absorbent cotton or clean linen, it is an ideal dressing.

HÆMORRHAGE.

Hæmorrhage from the navel ought usually to be an avoidable accident, or easily remediable when it does occur; and yet we occasionally hear of deaths from this cause. R. H. Montgomery¹⁵¹_{Feb.} reports a case of hæmorrhage in an 8-month infant which did not occur until the eighth day of life. The stump had dropped on the fourth day, leaving a surface which was apparently normal. As styptics, alcohol was first used locally; then Monsell's solution, with compression and elastic bandage; then digital compression. Finally, the umbilicus was transfixied with needles at right angles to each other and a figure-of-eight ligature was thrown around them, the hæmorrhage being then effectually checked. The blood did not seem to coagulate readily; hence the persistent hæmorrhage. The question naturally arises: Why was not the transfixion method used at the outset? Quite a large number of isolated cases of hæmorrhage have been reported during the year, but nothing new, either as to the phenomena attending them or the methods of treating them, has appeared. Perhaps a single exception may be made with reference to a case in which the cord was too short to permit

the normal extension of the child out of the genital canal. The cord ruptured close to the navel and hæmorrhage was profuse, but was checked by digital compression. Lugeol¹⁸⁸_{Nov. 22, '91} states that, in four thousand labors which he has superintended at the Maternity of Bordeaux, he had seen but one case of umbilical hæmorrhage, but he reports four others which occurred in his private practice. He well remarks that the accident is such a serious one that it must never be neglected. Gastro-intestinal hæmorrhage in the newborn infant is even more rare than hæmorrhage from the navel. Pilliet has never seen but one case of the accident and Hænoch has seen very few. Grünfeldt⁶⁷_{July 15} has also seen one case which is here recorded. The bleeding was first observed on the fifth day of life, the diapers being much stained, and signs of collapse being apparent. It was checked by means of enemata of cold water, and tannic acid and rhatany by the mouth. In twelve days the child seemed entirely well. The causes to which this condition is ascribed are not well defined. It may come in poorly-developed infants, especially those who are syphilitic, from hæmophilia, prolonged labor, or undue compression during the second stage of labor. Hence it is usual that the accident occurs during the first days of life, though rarely before the evacuation of the meconium. The prognosis will vary, of course, with the quantity of blood lost, and the readiness with which the discharge can be checked. The child's nutrition must be closely looked after; alcohol should be given if collapse seems imminent, also ergot. Of the latter 10 or 15 centigrammes ($1\frac{1}{2}$ to $2\frac{1}{3}$ grains) may be combined with 60 grammes (2 ounces) of solution of gum arabic, and small and often-repeated doses administered. Opium and iron preparations will also be found serviceable. In addition to the foregoing, successful cases of this accident have also been reported by G. T. Smith,²⁸⁴_{Mar.} Schmid-Monnard,³⁴_{Jan. 19} T. Hope Lewis,⁵⁵⁷_{Oct., '91} and W. Fell.⁵⁵⁷_{Oct., '91} The latter also reports one fatal case, and one is reported by Pomorski.¹⁵⁸_{B. 14, H. 2, 4} The last-named writer made a careful autopsy of the infant whose history he has recorded, and also made a series of experiments upon dogs to show that this accident might be a result of more or less injury to certain structures of the brain.

Another rare form of hæmorrhage in newborn infants is hæmorrhage from the vagina. Eröss¹⁰⁹_{Aug.} has observed six cases within the past two years. In two of them it began on the third

and in four on the fourth day. In two it continued two days, in three four days, and in one five days. Death resulted in one case; the infant was premature and died from exhaustion. A post-mortem examination of the endometrium showed a dark color, with more or less detachment from the subjacent connective tissue. On its surface were two clots as large as beans. The peritoneum covering the fundus was congested. The cervical mucosa was pale. The vaginal mucous membrane was swollen and congested. There were clots and mucus in the vagina and in the cavity of the uterus. The hæmorrhage was attributed to acute catarrh of the mucous membrane of the entire genital tract, but the cause of the acute catarrh is not explained. The five children who survived were well developed, and no history could be obtained of septicæmia, syphilis, hæmophilia, or Winckel's disease. Such cases, while of obscure pathogenesis, seldom, in fact almost never, warrant the hypothesis of precocious menstruation. Such an occurrence could only happen with mature genital organs, and the latter is an event of the rarest possible existence in the newborn.

HÆMATOLOGY.

The influence which the blood circulating in the fœtus and placenta, at and after the moment of birth, has upon the nutrition of the infant, and the co-ordinate question of late or early ligation of the cord as a means of regulating this circulation, have been investigated by a number of writers at various times, but by no one more persistently or earnestly than Schiff.⁵_{Dec.} Yet another contribution to this subject has been made by him during the past year. He found the number of red corpuscles in the blood of infants in whom the umbilical cord was tied immediately after birth greater than in those with whom it was tied after the umbilical circulation had ceased. Taking into consideration the fact that there is a loss in body-weight in the newborn infant during the first few days of life, he endeavors to prove that such loss will be minimized by late ligation of the cord, the greatest possible quantity of albuminoid material being thus saved to the blood.

Cattaneo⁵_{Dec.} has followed a somewhat similar line of investigation in studying the volume of hæmoglobin in the blood of the newborn. At the moment of delivery, he found that the blood of the average woman contains 93.8 per cent. of hæmoglobin. Rela-

tive to this, the fœtal blood was found to be represented by 120.2 per cent., both arterial and venous blood in the umbilical cord containing the same quantity. Anæmia in the mother did not seem to influence the volume of hæmoglobin in the fœtal blood, nor in that of the child immediately after birth. The greatest volume of hæmoglobin was found in the blood thirty-six to forty-eight hours after birth, the quantity diminishing on the succeeding days. He also found that when the cord was not tied until some minutes after birth, the quantity of hæmoglobin was greater than when it was tied immediately after birth. Small placentæ signified an increased quantity of hæmoglobin in the fœtal blood, and large placentæ a diminished quantity.

Berggrün, experimenting upon the physiology of the circulation in the newborn, and working especially along the lines drawn by Soltmann in his "Inhibitory Nervous System in the Newborn," concludes that the rhythm of the heart in the newborn is dependent upon its innervation, and that it can be changed by a changed condition of irritation of one or another nerve. Therefore it is possible that all those regulations in function can take place in the newborn by which the distribution of the blood is affected by the vasomotor apparatus.

EYES.

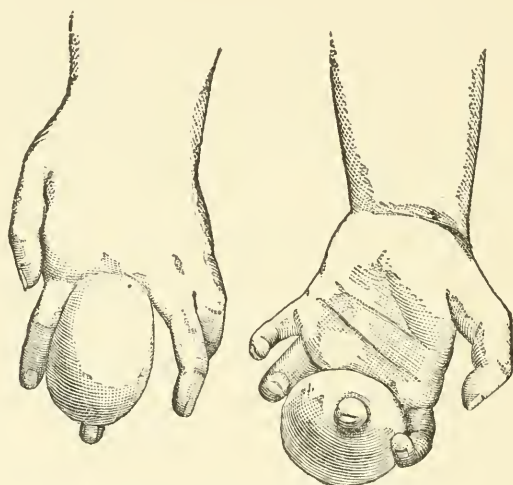
It is now generally recognized that one of the most important precautions with reference to the newborn during labor concerns the care of the eyes, especially with reference to the prevention of gonorrhœal ophthalmia. It was Credé who called attention to the value of prophylactic applications of nitrate-of-silver solution to the eyes of the newborn, this measure having banished the disease from those localities in which the treatment was faithfully practiced. Briskin²_{Mar. 19} calls attention to Kaltenbach's method of treatment, which consists in the disinfection of the maternal genital canal and the subsequent washing of the infant's eyes with distilled water. While this method presents a slight difference in detail, it can hardly be more efficient than the method of Credé, and certainly should not detract from the credit due to the latter for his simple but revolutionary method of treatment. Disinfection of the genital canal in any case of possible or suspected gonorrhœa would seem to be a matter of course,

ABSCESSSES AND TUMORS.

Reports have appeared, from time to time, of cases in which engorgement of the mammary glands in the newborn has been noted. With it has been observed a milky secretion which continues two or three weeks and then disappears spontaneously; analyses of this secretion have shown that it was analogous to, if not identical with, woman's milk. This is now known to be merely a physiological phenomenon. In rare cases this swelling has been known to result in suppuration, and such an accident in a female child would be very unfortunate. Comby⁶_{Mar.5} has issued a note of warning against the common practice of artificially emptying the lacteal ducts in such cases, on account of the danger of destroying the gland or of exciting suppuration, though the intention might be to prevent that result. Of course such a result would be due to the introduction of disease germs upon unclean fingers. Instead of such a plan, Comby recommends the application to the swollen surface of a suitable piece of mercurial plaster; or, if that be too irritating, of *emplastrum roborans*. Ashby and Wright²_{Feb.27} report a curious instance of vitello-umbilical polypus, which had remained as an elongated red tumor after the rest of the stump had sloughed away. The cord had been tied in the usual manner, a portion half an inch long had dried, and there had remained the red polypoid tumor in question, two and a half inches long, through the centre of which a probe could be passed into the abdomen. The tumor was ligated and removed, and was found to be a piece of everted bowel, probably a portion of Meckel's diverticulum. Its canal was lined with villi, the outer layer consisting of tubular glands and broken villi; between the two were muscular and connective tissue. Whether the bowel had been everted or prolapsed was uncertain.

Another rare tumor in the newborn is goitre. Cases have been reported by Betz, Stoltz and Bach, Béraud, Malgaigne, Hecker, Boucher, Honel, and Virchow. This list is increased by an interesting case reported by Lyonnet,²¹¹_{Dec.20,'91} the child being a younger twin, whose mother was goitrous. The child breathed only three or four times, in spite of all efforts at resuscitation. Its neck was twice the normal size, the two lobes of the thyroid being greatly enlarged, and the trachea so compressed that breathing would have been impossible. An hereditary affection of this kind

is very unusual. A congenital cyst of the neck is reported by Martin,¹⁹⁷ June 20 being at birth as large as the child's head. The fluid, clear and yellow, was emptied, through a needle-puncture, by the midwife who delivered the child, and three additional times, as it refilled, in the course of the next three weeks. The tumor was extirpated, the wound healing kindly, and the patient recovered. A case of congenital encephalocele is reported by O. S. Mills.⁵³ May 14 The sac ruptured during delivery, and was removed a few hours after birth. It was sixteen inches in diameter. The patient died on the day following the operation. The sac had no communication with the cranial cavity, and so could hardly be considered an



CONGENITAL TUMOR OF MIDDLE FINGER.
(*Bulletin de la Société Anatomique.*)

encephalocele. Cephalhæmatoma is reported by O. W. Wilson,¹⁹ May 7 the tumor reaching the size of a hen's egg. The child was feeble and puny. During the sixth week of life the tumor ruptured spontaneously. The child recovered and became a vigorous infant. A congenital tumor of the middle finger of the left hand is reported by Chavane.⁷ Apr. 22 Its length was five centimetres, diameter two centimetres, circumference eight centimetres. Gangrene of the tissue was apparent on the sixth day, and the finger with the tumor was amputated. It was composed entirely of connective tissue. The child died the following day. (See illustration.)

DIETETICS OF INFANCY AND CHILDHOOD; INFANTILE DIARRHŒA.

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LACTATION.

Walsh ⁸¹_{Mar.} believes that, as soon as the blood becomes impoverished by the continued drain of prolonged lactation, the nervous system begins to suffer. Anæmia of the brain produces headache, mental inertia, and depression, which, if carried to an extreme, results in melancholia. Anæmia of the cord produces general muscular weakness, neuralgias, and relaxation of tissues. All are familiar with the relaxed condition of the vagina and pelvic tissues of anæmic women, and with the uterine displacements and catarrhs that follow as a natural sequence. Again, anæmia of the centres of secretory nerves causes a diminished flow of the gastric and pancreatic fluids, which in turn cause atonic dyspepsia, establishing a vicious circle and increasing the anæmia by malnutrition. Anæmia of the vasomotor centres produces a weak and irritable condition of the vasomotor nerves; so that slight local irritation produces great local congestions, often resulting in transudation of serum into the tissues.

“Vasomotor paralysis and long-continued dilatation of the vessels in the breast itself tend to produce permanent enlargement of the vessels, making it difficult to check the secretion of the gland. Changes in the gland-cells may occur, and are certainly favored by the hyperæmia. If uterine displacement or catarrh occurs, another vicious circle is established, for uterine irritation undoubtedly causes reflex hyperæmia of the breast and increases the dyspepsia. Atony of the intestine, with constipation and flatulence, absorption of intestinal gases and poisons, alterations in the

urine from poor oxygenation, vesical catarrh, and a host of other evils are liable to occur and add directly or indirectly to the causes that increase the anæmia. In anæmia, the blood-serum loses its antiseptic properties, and the cells of the body become less able to resist the attacks of bacteria; consequently the patient is in danger of contracting any one of the many local, general, infectious, contagious, or paludal diseases. Thus anæmia really covers the whole ground.

“Until recently the *treatment* has been erroneous. The most important object of treatment is rest of the gland, and all rubbing, pumping, application of liniments, etc., are to be avoided, as such measures increase the irritation and prolong the lactation. Wash the breast thoroughly with a bichloride solution, apply a thin layer of sterilized cotton, cover with a compress of bichloride gauze and a firm bandage. Then leave the breast untouched for a week, without fear of abscess, or of bad odor from decomposition of the leaking milk. If the breast becomes tense and painful, do not pump it, but give an active saline purge. This usually relieves the tension and pain promptly. Otherwise, the alternate use of purgatives and of morphia and atropia should be continued until the pain ceases, as it always will in a few days. Hard lumps need give no uneasiness, if the breast is made aseptic. They will absorb. The bandage and compress support the breast, give it rest, and produce local anæmia by pressure. Filling of the gland with milk also drives out the blood, and is a conservative process. Iodide of potassium, belladonna, camphor, etc., are of doubtful efficacy and may do harm. Bromides may be useful in lessening reflex irritation.

“There is a popular fallacy among women that as long as they are nursing a baby there is no danger of their becoming pregnant; and this is one of the principal causes of the anæmia which so often is seen in nursing women after the period of weaning has passed. This belief must be prevented by assuring our patients that it is common for a woman to become pregnant whilst nursing her child, and that breast-milk, after the tenth month, contains no more nourishment for the baby than does beef-tea for the ordinary uses of the sick-room. The writer reports a case where lactation had been prolonged to the twenty-fourth month, in the hope of escaping pregnancy. The woman was anæmic to the highest degree,—

a perfect neurasthenic, with dysmenorrhœa, constipation, and loss of appetite,—a curse to herself, and a nuisance to her friends. Her baby had a mouthful of teeth, and ate everything he could get. After the cause of the anæmia was removed the woman, through the use of tonics and good diet, in time became useful to her family and—*pregnant*.”

L. Emmett Holt, of New York, showed, before the American Pediatric Society, May 2d, a simple apparatus he had devised for the clinical examination of breast-milk, which consisted of a lactometer and a graduated tube: “Milk to be examined is either the entire specimen at a single nursing or a specimen taken as near the middle of the nursing as possible. The specific gravity is first taken; then the milk is put into the graduated tube up to the 100 line, and allowed to stand for twenty-four hours on the physician’s table, at which time the amount of cream which has risen can be read off as hundredths. A good average milk has a specific gravity of about 1030, with about 8 per cent. of cream. Provided the specific gravity and the *percentage* of cream does not vary materially from these figures, it may be inferred that the amount of proteids is normal. The quantity of milk must be taken into account, just as it is when a chemical analysis is made. For instance, Holt has seen the cream at 15 per cent., and yet the children were losing. The milk in this case was found to be scanty.”

Abnormal Lactation.—At the meeting of the Gynæcological Society of Dresden, on December 10, 1891, Rupprecht<sup>317
No. 12</sup> reported some interesting cases of apparent milk secretion, absence of milk secretion, and milk secretion at irregular times. As examples of the first, he described cases in the newborn, in young girls and boys at the time of puberty, when, in some instances, drops of colostrum could be squeezed out of the enlarged and hardened glands; in women with mammary tumors, either malignant or benign, from whose breasts could be squeezed a few drops of a turbid or hæmorrhagic fluid, in which could be found round and epithelial cells, cholesterin, and bacteria, but no fat-particles; in women with chronic eczema of the retracted, inverted, or atrophied nipple, in whom the diseased surface kept up a constant weeping, that is often taken for milk secretion.

As an example of entire absence of secretion (agalactia), the

case of a woman 33 years of age was described. Two years before she had had her first child, which she had nursed out of the right breast for eight months. The left breast furnished a small amount of milk only for four months, then "water," and in a little while nothing. The gland on this side was hard and not easily held between the fingers. Rupprecht believed it to be the seat of pericanalicular fibroid formation, otherwise called cirrhosis of the breast,—a condition necessarily interfering with functional activity of the gland, and furnishing, moreover, in its ultimate stage of shrinkage, the foundation for carcinomatous formation.

As an example of milk secretion at odd times, Rupprecht described the following case: A woman, 43 years of age, had married at the age of 31, and had had five children. On account of retracted nipples, she had never been able to nurse her children, but always had plenty of milk in the breasts. From the time of her first delivery the breasts had never been empty, and were today, two years after the birth of the last child, actively secreting. Since the last delivery there had developed in the right breast a lump, which a physician opened, thinking it an abscess. There was no pus, but a quantity of turbid fluid stained with blood ran out. A few days later there occurred the same phenomenon seen on the third day after delivery,—sudden congestion of the breasts, and their engorgement with milk. The incision did not heal, but left a lacteal fistula. In endeavoring to slit this open, Rupprecht encountered a small, new growth in the breast, which proved to be a carcinoma. The right breast was, consequently, amputated. The left breast still continues to secrete actively.

It is a generally received view that the supervention of menstruation during the period of lactation is prejudicial to the quality of the maternal milk-supply, and therefore detrimental to the nutrition of the child. Most practitioners will probably state, as a matter of observation, that menstruation unfits the mother as nurse by reducing the quantity of the milk, in addition to rendering it more "watery." In order to ascertain the real effect of menstruation on the quality of the milk, Schlieter²²_{Feb.10} has made a series of analyses which seem to show that the current belief is founded on defective observation. In addition to careful examination of the composition of the milk during and after menstruation, he had the child weighed and its general condition noted at and after the

same period. He reports that, in respect both of casein and fat, the milk secreted during menstruation compared favorably with that furnished prior to that date. The differences observed, moreover, in no case equalled those which occur in the milk of the normal healthy female at various periods of the same day; hence he declines to attach any importance to them. He concludes by asserting that menstruation, either before or after the sixth week, can have no deleterious effect on the offspring.

Temporary Blindness during Lactation.—Nettleship⁴²³_{Dec., '91} reports several cases of temporary failure of sight in women during lactation. These cases are distinguished from those of retinal disease due to the albuminuria of pregnancy, and also from those in which blindness results from severe post-partum hæmorrhage. He has not seen any of the cases he describes during the time of blindness, but the ophthalmoscopic appearances present at varying periods after the attack point, with more or less certainty, to a previous optic neuritis. He believes that these cases will probably be found to belong to the same group as the optic neuritis, now and then met with in chronic anæmia.

Transmission of Disease by Lactation.—Maygrier²⁵⁶_{July} read before the Obstetrical Society of Paris notes of the case of a woman who had lymphangitis of the breast shortly after labor, and suckled her child with the affected organ. The child died when fourteen days old. Pus was found in abundance in different organs, especially in the digestive canal and the nervous centres. The respiratory tract was not involved, and there was no evidence of supuration of the umbilicus. The infection had evidently occurred through the alimentary tract.

Carbolic-Acid Poisoning in a Suckling.—V. F. Bulvebash⁵³⁰_{No. 9} relates the following case: A previously healthy infant, aged 3 months, was brought into a room which had just been disinfected by spraying about 6 pints (3 litres) of a 5-per-cent. carbolic-acid solution. In about half an hour the child awoke, crying and looking exceedingly pale. Shortly afterward there appeared diarrhœa with dark-green, thin stools, while the urine was dark-gray in color, with an olive-green tint. The pulse was weak and rapid (140 per minute); the respiration irregular and somewhat hurried; small, moist râles were heard in the lungs; there was also a slight, short cough, with anorexia and general prostration. The treat-

ment consisted in the administration of a large teaspoonful of castor-oil and 2 drops of spiritus Mindereri (liquor ammonii acetatis) as a diaphoretic every two hours, a warm bath of ten or fifteen minutes' duration being ordered at bed-time. Gradual improvement took place, ending in complete recovery about the third day after the inhalation of the carbolic vapor.

HAND-FEEDING.

Use of Lime-Water in Artificial Feeding.—Courant¹⁰⁸_{July 1} thinks one reason why cows' milk is not easily digested by infants is, that the casein formed by the action of the curdling ferment of the gastric juice is dense and tough, while that formed from human milk is flaky. The addition of lime-water to cows' milk causes it to be precipitated in flakes also, and thus overcomes this disadvantage to a great extent. A tablespoonful of lime-water to an ordinary bottle of milk is enough, and a little sugar of milk may be added to correct the taste of the lime-water.

At the Congress of Working-Class Hygiene, an interesting address was given by Budin²_{May 7} on infant hygiene, suckling, and *crèches*. He told his audience not to give a newborn infant anything during the first two days of its life, and not to purge it with *sirop de chicorée* a few days after birth. This practice causes the death of many infants. Children which are too good, never cry, are always asleep, and never wet nor soil their napkins, should be closely watched, and weighed; they are generally feeble. The belief that suckling women should drink beer Budin declares to be erroneous. He forbids beer, and allows very little wine, very little meat, but an abundance of starchy food. He is not enthusiastic about the much-vaunted English nurseries, and stated that many more children in England die than appear in the death-returns, because births need not be registered until six weeks afterward.

Sterilized Milk.—Rowland Godfrey Freeman¹⁹¹_{Aug.} states that, since attention has been directed to the large number of bacteria in the ordinary milk-supply, some at least of which appear to be deleterious, efforts have been made to more or less completely kill them by means of heat sterilization. This has, until recently, been accomplished by exposing milk to a temperature of 100° C. (212° F.) for a period varying from twenty minutes to an hour

and a quarter. After an experience of six years with milk so prepared, the general verdict of the profession is that, while sterilized milk is most valuable in the treatment of gastro-intestinal disorders, it is very often unsatisfactory when used as a regular food, seeming, for some reason, not to fulfill the condition of perfect nutrition. Analyses explain this, in a measure, by showing that various chemical changes take place in milk between 75° C. (167° F.) and 100° C. (212° F.), and that these changes become more marked as the temperature becomes higher. According to Leeds, sterilization at the boiling-point of water causes the following modifications in the milk: the starch-liquefying ferment is destroyed and coagulated. A portion of the lactalbumen is coagulated. Casein is rendered less coagulable by rennet, and is acted on slowly and imperfectly by pepsin and pancreatin. Proteid matters attach themselves to fat-globules and probably bring about a less perfect assimilation of fat. Milk-sugar, by prolonged heating, is completely destroyed. According to Koplik, "From the temperature of 75° C. (167° F.) upward there is a separation of the serum-albumen of the milk; the casein loses its coagulability to rennet, and, at 85° C. (185° F.), amounts of rennet, which, for the raw condition of milk, are found sufficient to act, cease to be effective." Heuppe, quoted by Koplik, considered that, from a physiological stand-point, milk is best sterilized, if possible, under a temperature of 75° C. (167° F.). In the meantime, it has been shown by investigators that temperatures lower than 100° C. (212° F.), if continued for a short time, will destroy a very large proportion of the germs, and will destroy with certainty many pathogenic germs which find their way into milk, either from the cow or as external contaminations.

The problem, then, presents itself to devise a method of preparing milk which shall destroy, by efficient means, the contained germs, and yet in the least possible degree interfere with its nutritive qualities. In other words, the minimum temperature used must be high enough to destroy most of the germs; the maximum must be so low as not to alter materially the chemical composition of the milk. In 1868 Pasteur found that exposure of wine for a short time to a temperature of 55° C. (131° F.) would prevent its spoiling; other observers have found that a temperature of from 60° C. (140° F.) to 70° C. (158° F.) was sufficient to kill

bacteria. The term Pasteurization is now used for any process by which the germs of wine or milk, or other fluid, are destroyed by the use of heat between 55°C. (131°F.) and 80°C. (176°F.), followed by rapid cooling. Pasteurization does not usually render all germ-containing fluids absolutely sterile; all spores are not deprived of life, and certain vegetative forms may prove invulnerable. But a sufficient number of such forms may be killed as to check, if not permanently hinder, fermentative changes. The rapid cooling is necessary to prevent the spores which remain in the fluid from developing.

Of the thoroughly known pathogenic germs which may exist in the milk, the bacillus tuberculosis, in the light of our present knowledge, is one of the most important. It has been shown by many experiments that any of the following exposures to heat will destroy the bacillus tuberculosis in milk: 75°C. (167°F.) for ten minutes; 70°C. (158°F.) for fifteen minutes; 68°C. ($154\frac{1}{2}^{\circ}\text{F.}$) for thirty minutes. While it is important to destroy the pathogenic germs above described, the beneficial effects of sterilized milk, especially in summer diarrhœa, are undoubtedly due to the destruction of other, as yet, little-known forms which the milk, especially in summer, is apt to harbor. The author's apparatus is constructed on the principle of the distribution of heat through two fluids of unequal temperatures, and will raise the contained milk through about 60°C. (140°F.) of temperature [from 15°C. (59°F.) to 75°C. (167°F.)] and keep it at about its maximum temperature for thirty minutes, after which there is a loss of about 1°C. (1.8°F.) every fifteen minutes.

The apparatus consists of two parts, a pail for the water and a receptacle for the bottles of milk. The pail is a simple tin pail, with a cover; there is a groove extending around it to indicate the level to which it is to be filled with water, and supports inside for the receptacle for the bottles of milk. This receptacle consists of a series of hollow, zinc cylinders fastened together, fitted into the pail so that the tops of the cylinders are almost level with the top of the pail. The writer has experimented with other forms of receptacle, but finds this the best.

The apparatus is used in the following way: The pail is filled to the level of the groove with water, covered, and put on the stove to boil, the receptacle for the bottles being left out. The

bottles of milk are filled and stoppered with cotton and dropped into their places in the cylinders. Sufficient water is now poured into each cylinder to surround the body of the bottle. This is very necessary for conduction of heat. When the water in the pail boils thoroughly, it is taken from the stove and set on a mat or table, or other non-conductor, the lid is removed, and the receptacle containing the bottles of milk is set inside. The lid is now put on and the whole is allowed to stand thirty minutes, after which the bottles of milk are placed in a refrigerator. Milk subjected to this process, put immediately into a refrigerator and kept there, will keep well for several days.

The author has made a series of experiments at the Bacteriological Laboratory of the College of Physicians and Surgeons of New York, to test the efficiency of this apparatus in the Pasteurization of milk. Specimens of milk obtained at different times, and from different sources, have been examined to determine the number of bacteria contained in one cubic centimetre, before and after Pasteurization. This was accomplished by planting in gelatin plates. While the raw milk used contained from eight thousand to two hundred and thirty thousand and more bacteria to each cubic centimetre, this same milk, after Pasteurization, usually contained none.

TABLE SHOWING THE NUMBER OF BACTERIA IN ONE CUBIC CENTIMETRE OF MILK BEFORE AND AFTER PASTEURIZATION FOR ONE-HALF HOUR.

NUMBER OF EXPERIMENT.	Number of Bacteria in Raw Milk.	Days of Exposure of Pasteurized Milk.			
		1	2	3	4
I	8,960	0	0	0	0
II	90,000	0	0	0	0
III	28,288	0	0	—	—
IV	Innumerable.	0	—	—	—
V	18,432	0	0	0	—
VI	Innumerable.	0	0	0	—
VII	230,400	0	0	1	—
VIII	100,000	0	0	1	—
IX	17,384	0	0	—	—
X	Innumerable.	0	1	—	—
XI	54,900	0	—	—	—
XII	60,230	0	—	—	—
XIII	Innumerable.	0	—	—	—

Freeman's conclusions are as follow :—
1. Both clinical and chemical evidence lead us to believe that

milk is injured for infant food by the formerly practiced methods of sterilization by boiling or steaming, or even by any temperature above 80° C. (176° F.).

2. Pasteurization, with a temperature between 70° and 80° C. (158° and 176° F.), destroys tubercle bacilli, and, according to Van Geuns, destroys the typhoid bacillus, the cholera bacillus, and the pneumococcus of Friedländer; also most of the ordinary milk-germs, and does not injure milk.

3. Milk may be Pasteurized by simply immersing it in a proper proportion of boiling water, the source of heat having been removed, and leaving it so immersed for half an hour.

4. In the apparatus here described, the proper proportion between the boiling water and the milk has been calculated and tested, and by the use of the apparatus in practice ordinary milk in summer is found to have been rendered practically sterile, and keeps unchanged in a refrigerator for several days.

An editorial writer¹⁴⁴_{Sept.} states that milk, tightly sealed in strong bottles, and boiled in a saturated solution of salt for thirty minutes, will keep perfectly for an indefinite length of time. The writer opened a bottle which had thus been sterilized three months ago and found it to be as fresh as when placed in the bottle. It is only necessary to take the precaution to allow the solution of salt in which the bottles are boiled to cool before removing the bottles. If the bottles are removed from the solution while hot, they will almost instantly burst. The vessel containing the bottles of boiling milk should be set aside and allowed to cool gradually, when the bottles should be removed and placed in an ice-chest, or an ordinary refrigerator. Soda-water or beer bottles are excellent for the purpose. Ordinary corks may be used, but they should be previously boiled for half an hour. They should be pressed in tightly, and fastened with wire, or with a patent fastener. After the bottles have been cooled and removed from the boiling kettle, the tops should be very carefully dried and, if corks are used, covered with sealing-wax, such as is ordinarily used for canning purposes.

The efficiency of the salt solution is due to the fact that its boiling-point is 227° F. (108.3° C.), while that of boiling milk is less than 200° F. (93.33° C.). By using different salts, a still higher temperature may be attained. For example, a saturated solution of

carbonate of potash, or saleratus, boils at a temperature of 275° F. (135° C.), while a saturated solution of chloride of calcium boils at 355° F. (179.3° C.). These high temperatures are, however, unnecessary.

Budin^{Aug. 6} has lately conducted some experiments on the artificial feeding of infants in his wards at the Charité Hospital, and communicated the results to the Académie de Médecine. The system followed in his practice is to administer to all the newborn children, for the first three days, cows' milk sterilized by means of Soxhlet's apparatus, this sterilized milk supplementing or replacing the maternal supply according to circumstances. The milk is given undiluted with water. Should the quantity of the mother's milk be sufficient the artificial product is not given. If the maternal supply is deficient, or absent, the sterilized milk is continued wholly or partially. Notes were taken of these three categories of infants under observation from April 1 to June 28, 1892. Of 89 fed exclusively at the breast after the third day the average daily gain of weight was 28.17 grammes ($7\frac{1}{4}$ drachms). The average daily gain of weight from the second day, of 91 infants submitted to the mixed diet, was 18.16 grammes ($4\frac{2}{3}$ drachms), the corresponding average in 11 infants fed on sterilized milk only being 14.24 grammes ($3\frac{2}{3}$ drachms). The average daily increase in weight for the 191 infants, taken together, was 22.59 grammes ($5\frac{4}{5}$ drachms). Of the 89 breast-fed children 6 had diarrhœa, whilst 7 such cases occurred amongst the 91 mixed-diet infants and none amongst the 11 artificially fed. In no instance was the diarrhœa severe, and all the little patients recovered. It will be noticed that the development of the nursling, as judged by the daily increase in weight, was most marked in the case of the breast-fed, less in the partially breast-fed, and least of all in the artificially fed.

The total absence of gastro-enteric complications amongst the children brought up exclusively on sterilized cows' milk is an important feature of Budin's communication. That physician is, however, very emphatic in his preference for breast-feeding, and pronounces strongly in favor of daily weighings as the most reliable means of ascertaining the physical progress.

In an elaborate paper on infant feeding W. S. Christopher, of Chicago,⁶¹_{May 21} comes to the following conclusions:—

1. In instituting artificial feeding, the alimentary canal of the infant should first be put into normal condition, and during this period the food should, irrespective of its properties or value as a complete nutrient, be adapted to the condition in the alimentary canal.

2. The alimentary canal being in normal condition, the food used should be within the physiological capabilities of the baby.

3. The food adopted should be pure and, if the conditions will permit, it should be sterilized.

4. The food intended for the complete nourishment of the infant should contain the necessary proportions of proteids, carbohydrates, fats, and salts, and the composition of human milk should be the guide in determining these proportions.

5. The antiscorbutic element should usually be present. In its absence the child should be carefully watched and this element supplied when found necessary.

6. Sterilized milk and foods made up of dried milk-solids are deficient in the antiscorbutic element.

7. Water is an essential ingredient of the food-supply of the infant, and should be administered freely.

8. Foods which are deficient in one or more of the necessary ingredients lead to the development of various forms of innutrition, particularly rickets and scurvy.

9. The infant should be fed at regular intervals and not overfed.

10. The best artificial food for a healthy infant is pure milk, from healthy cows, properly diluted and sweetened, and sterilized if the conditions of nutrition permit.

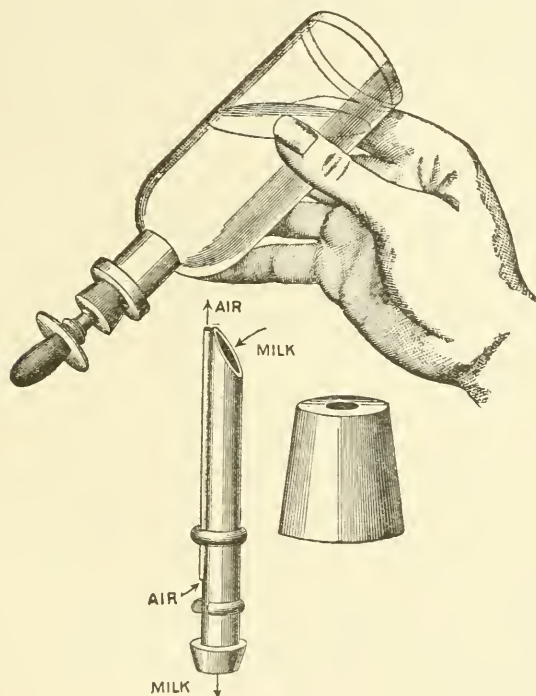
Milk-Curd the Cause of Death.—Demme^{2014 169}_{'91; p.171} has reported the sudden death of a dyspeptic child, 10 months old, without recognizable cause, in which, at the autopsy, the œsophagus and entrance to the larynx were found occluded by a coagulum of cows' milk ejected from the stomach by vomiting and causing asphyxia.

The Galactophore.—The galactophore⁶⁷ is the invention of Budin, of Paris, and has been used for several months in the Charity Hospital of Paris, and in the city. The illustration on page 13 gives a clear idea of the design of the instrument.

In a rubber stopper, which may be used for almost any bottle,

pass two joined tubes: one large, for the passage of the milk; the other very small, for the entrance of air. A rubber nipple and a circular disc of bone complete the instrument.

The tube intended for the passage of air should be very fine; so that (1) the milk may not escape by the air-tube when the bottle is reversed; (2) that it may not pass too freely into the infant's mouth when suction is applied to the nipple.



BUDIN'S GALACTOPHORE.
(*Bulletin général de Thérapeutique.*)

The galactophore is very easily cleaned and taken care of, and when not in use can be kept in water.

Gavage.—Kerley ⁵¹_{Feb.} observes that washing out the stomach seldom in itself induces vomiting in infants. He employed forced feeding in 20 cases of persistent vomiting in infants, of whom 11 were under six months and only 2 over one year. The vomiting was effectually controlled in 15, of whom 6 eventually recovered completely. In 3 of the cases which were not benefited by the treatment there was very high temperature, and

generally the cases in which it was most successful were those in which the temperature did not exceed 103° F. (39.44° C.). The amount of food which could be retained was remarkable,—three or four times as much as was ever retained by the patients when administered by the mouth. In two cases, in which everything given by the mouth was invariably rejected, food given through the tube was retained and digested. The apparatus used was a small-sized adult nasal feeding-tube attached by a small glass tube to an India-rubber tube $2\frac{1}{2}$ feet (0.762 metre) long, and furnished with a glass funnel. The child should be held in a half-reclining posture, supported by the nurse's right arm; the tube must be introduced rapidly, the quantity to be given poured into the funnel, which is then raised as high as possible, the tube compressed and instantly withdrawn as soon as the funnel has emptied itself. A dextrous operator can introduce an ounce in this way in fifteen seconds. It is important to compress the tube before withdrawing, as otherwise a small quantity of the fluid remaining in the tube may escape into the pharynx, or even into the larynx, and excite vomiting.

As to the reason for this favorable influence of forced feeding in preventing vomiting, Professor Gilman Thompson had suggested that it might be due (1) to the avoidance of the prolonged and repeated irritation of the vagus and sympathetic during the act of swallowing and sucking; (2) to the absence of any residue in the mouth to decompose and excite the gustatory and olfactory nerves; (3) to the absence of the frequently-repeated mechanical irritations of the stomach by the entrance of small quantities of fluid at each act of swallowing.

The Influence of Couvause and Gavage upon the Mortality of the Newborn.—Since the introduction of couvause and gavage at the Paris Maternité, the mortality among infants born prematurely has been considerably reduced, as the following figures amply demonstrate³¹_{No. 3, '91}:—

Duration of Gestation.	Mortality.	
	Formerly. 100 per cent.	Now. 84 per cent.
6 months,	100	84
6½ "	78.5	63.4
7 "	61	50.2
7½ "	46	23
8 "	22	11.2
8½ "	12	4

INFANTILE DIARRHŒA.

Predisposition to Diarrhœa.—Louis Fischer, of New York, ⁴⁶²_{Sept.} states that healthy infants have a normal tendency to loose, liquid, and semi-liquid evacuations from the bowels: (1) partly from the condition of the intestinal tract; (2) partly from the nature of normal food, *i.e.*, breast-milk. Peristaltic movements in the healthy child are very active. Young blood and lymphatic vessels are very permeable and the transformation of the surface cells active and rapid. The peripheral nerves are very superficial, more so than in adults, whose mucous membrane and submucous tissue have undergone thickening by both normal development and morbid processes. Besides, the action of the sphincter ani is not very powerful. Fæces are not retained in the colon and rectum, and little time is afforded for the re-absorption of the liquid or dissolved faecal contents. Frequency of acids (sometimes normal) in the small intestine gives rise to formation of alkaline salts with purgative properties. Free acids when found in the intestine show that (1) the quantity of food is too large; (2) the quantity of digestive fluid is too small, causing fermentation instead of normal digestion.

Colostrum secreted after birth is apt to cause diarrhœa, as is milk containing too much fat or too many salts, as in anæmia.

Duodenal catarrh can be diagnosticated when it is complicated with jaundice; it never gives rise to diarrhœa. When the fæces are fairly solid and contain masses of mucus thoroughly mixed with faecal masses, the diagnosis should be isolated catarrh of the small intestine. When undigested particles of food appear in the fæces, it is called lientery. When bile is in the passages, of a green color, yielding a distinct reaction with nitric acid, the bile being attached to the mucus and cylindrical epithelium and round-cells, the conclusion may be that the catarrh has its seat in the small intestine, as normally there is no bile in the large intestine. When the mucus is not thoroughly mixed with the fæces, when the fæces are wrapped up in it, or mucus covers the fæces after evacuation, that mucus comes from the colon, which is in a catarrhal condition.

Tenesmus is observed only when the lower portion of the rectum is involved in the morbid process. In considering the causes, Fischer enumerates:—

1. Food,—improper quantity and quality.

2. Improper artificial food mostly. But Jacobi says that even mothers' milk may cause the disease. Mothers who are sick or convalescing, or subject to strong emotions; who nurse too often; who suffer from tuberculosis or syphilis; pregnant or menstruating women, and all anæmic persons, secrete improper milk.

3. Influence of weather on digestion, especially excessive heat in summer.

4. Improper disinfection of the nipples *after nursing*, and consequent decomposition or formation of micro-organisms.

5. Improper disinfection of nipples before nursing.

6. Naso-pharyngeal catarrh a causative factor in gastric catarrh.

Dietetic Management.—Rachford⁵¹_{No. 6} formulates the following rules for the selection of a diet in summer complaint, when, as is usually the case, it becomes advisable to temporarily discontinue milk :—

1. Avoid albuminous food (*a*) when marked constitutional symptoms are present; (*b*) when in doubt as to the character of the fermentation causing the disease; (*c*) when the stools are putrid; (*d*) when the stools contain mucus and blood; (*e*) when the nausea is constant and not relieved by vomiting.

2. Avoid carbohydrates as a food (*a*) when there are no marked constitutional symptoms present and the stools are continuously acid; (*b*) when there is much flatus, pain, or urticaria.

3. When the albumens are to be avoided the carbohydrates are, as a rule, indicated; and when the carbohydrates are to be avoided the albumens are, as a rule, indicated.

4. Give such foods as cream, beef-broths, and whisky (*a*) when the foods prescribed according to the above rules disagree; (*b*) during the first twenty-four hours, in severe, acute cases; (*c*) when in doubt as to the character of the food indicated.

In the present state of our knowledge, these rules furnish our most rational and reliable guides in the selection of a diet in summer complaint.

The foods of greatest value in the treatment of summer complaint, and the indications for their use, are considered by Rachford to be as follow :—

“Whisky, one of the most useful, never contra-indicated;

especially useful in acute cases during the first twenty-four hours of treatment, but may be given at any time in either acute or chronic cases.

“Meat-broths contain so little albumen and carbohydrates that they are never theoretically contra-indicated. They may be given at any time, in either acute or chronic cases, but they are especially indicated in acute cases after the first twelve or twenty-four hours’ treatment.

“Cream contains so little albumen that theoretically it is never contra-indicated. It can do no harm in any form of the disease, but will be found to serve the best purpose in chronic cases, and after the third or fourth day in acute cases.

“Barley-water and oatmeal-water may be mixed with milk to advantage, as they mechanically facilitate the digestion of casein. In this combination they may be useful in chronic cases and in convalescent acute cases.

“White of egg is contra-indicated in all cases of summer complaint when there are marked constitutional symptoms present, or when the diarrhœa is putrid or mucous, but it may be used in that form of the disease dependent on an abnormal acid fermentation, and the indications of this condition are sour stools with pain, or urticaria, and the absence of constitutional symptoms. It may also be used as a permanent article of diet in infants incapable of digesting the casein of milk.

“Meat-juice is one of the most valuable and easiest digested of the albuminous foods. It is indicated when the symptoms indicate that the disease is caused by an acid fermentation, and, in chronic cases, when other albuminous foods disagree. It may also be used as a permanent article of diet in infants incapable of digesting the casein of milk.

“Sterilized milk, in small quantities and greatly diluted, may be used as an article of diet in many of the milder forms of summer complaint. The reason why milk frequently does not aggravate the disease, when given in this way, is because the casein and sugar of milk are taken in such small quantities that they are thoroughly disposed of before reaching the seat of the disease in the intestinal canal. While many cases do well when fed in this manner, I think we run an unnecessary risk in attempting to feed upon milk, during the most acute stage of the disease, when we

have other palatable and less dangerous foods. But after the constitutional symptoms have subsided, and the most acute stage has passed, the milk is indicated, and may be given as directed above.

“Mothers’ milk has the same indications as sterilized milk.

“Peptonized milk is occasionally useful in chronic cases incapable of digesting unchanged casein.”

The treatment detailed below has been proven in the practice of Louis Fischer, of New York,⁴⁶²_{Sept.} to be most successful. It has been employed by him during the past summer, while acting for Chapin in the Babies’ Wards of the Post-Graduate Hospital, and he has repeatedly tested it in the clinic for children held at the same institution. It was more successful in the hospital, where the little patients were constantly observed by competent nurses, than when the child was placed in the care of its mother, who, through carelessness, had probably caused the existing complaint. Hundreds of children were submitted to this treatment at the dispensary of the German Poliklinik (Children’s Department). It was also used in Baginsky’s children’s clinic last summer in Berlin, and is highly esteemed by Baginsky.

Mechanical Treatment.—Free the stomach and bowels of all food, mucus, and all unnecessary fermenting particles by introducing an ordinary catheter (soft, flexible, No. 10), attached to a fountain syringe, and pour about 1 quart (1 litre) of lukewarm water in which is dissolved one teaspoonful of boracic acid or of salt,—sodium chloride. In irrigating the bowel it is a good plan to use Tiemann’s rectal tube, introducing it, with a little vaselin, into the rectum, and gently pressing it upward through the internal sphincter; enter the colon and irrigate, in the same manner as in ordinary douches, with the solutions mentioned above, until the discharges from the bowels are clear.

Medication.—Frequently castor-oil; calomel (1 to 6 grains—0.065 to 0.389 gramme) is recommended; Fischer does not use them. Neutralize acids (fat acids) in stomach. Bismuth is the sovereign remedy, in the form of salicylate of bismuth, 3 to 10 grains (0.194 to 0.648 gramme) every two or three hours.

Jacobi²⁰¹⁵₇₇ speaks highly of salicylate of soda, but the writer has found in bismuth salicylate an excellent drug,—antiseptic and astringent. No salts of magnesium or sodium should be given,

as they cause diarrhœa. Avoid *syrups*, they will turn sour; glycerin is preferable. Resorcin (4 to 10 grains—0.259 to 0.648 gramme a day) is recommended by A. Jacobi. The author has found marked irritability of stomach follow its use, although there was a very good effect on the diarrhœa.

Sedatives.—He regards opium as one of the most indispensable drugs in the treatment of diarrhœa with pain from colic in small intestine. Great care must be exercised, however, to give *only the required dose*: Dover's powder, $\frac{1}{10}$ to $\frac{1}{3}$ grain (0.006 to 0.022 gramme) every two or three hours, with or without salicylate of bismuth. Nitrate of silver ($\frac{1}{50}$ to $\frac{1}{30}$ grain—0.0013 to 0.0022 gramme—or a little more) can be given to check bleeding, but great care must be observed in its use. He has frequently had cases sent to him with diagnosis of dysentery where bleeding was caused by one or two small erosions at or near the *anus*. It is wise, therefore, to carefully examine the anus, and if tenesmus exists it may cause these erosions to bleed. In such cases the painting of the anus with a solution of cocaine or Magendie's solution would be indicated.

Stimulation.—The strongest nerve stimulant is musk. Give in urgent cases 1 to 2 grains (0.06 to 0.13 gramme) every fifteen to thirty minutes (best in mucilage) until 6 or 12 grains (0.40 or 0.80 gramme) have been taken; camphor, $\frac{1}{4}$ to 2 grains (0.015 to 0.13 gramme), rubbed up with glycerin, or 10 to 15 drops of the spirits of camphor every half-hour, Fischer has found valuable. In obstinate cases hypodermatic injections of spirits of camphor will prove serviceable. Alcohol, in collapse, can be injected with some hot water through a flexible catheter (No. 12) into the bowels. By the mouth, whisky and water or whisky with gruel can be given.

Calomel being a mercurial salt, there is a possibility of its being admissible in some cases, owing to its antiseptic properties, and to its effect on the liver and consequent stimulation and augmentation of the flow of bile. But Fischer has seen so many children vomit after its use that he has discontinued it. Tannate of quinine has been recommended by many. This the author tried and found it a very poor drug for the purpose.

It is frequently necessary to irrigate a few times, and where the diarrhœa could not be checked starch-water enemata were

resorted to, or sometimes warm chamomile (*flor. matricaris*) irrigations two and three times a day.

Diet.—If a nursling, inquiry should be made into the quality of its mother's or wet-nurse's milk. A microscopical examination of the milk will be necessary, and this will determine whether breast-milk should or should not be given, unless we have some of the causes previously mentioned,—*e.g.*, tuberculosis, pregnancy,—when the lactation is interfered with. Here good cows' milk, properly sterilized, according to the *modified Soxhlet principle*, and diluted according to the age of the child, may be used. If the child is over six months old, it is wise in all diarrhoeas to discontinue the breast and give the child barley- or rice-gruel. If the child does well, it is a wise plan to change the food from time to time and to give some tapioca, hominy and milk, sago with milk, a little corn-starch or rice-pudding. Raw scraped steak and beef-blood are also recommended.

If children are over six months, yolk or white of egg, beaten with a little sugar of milk, and, if stimulation is necessary, some Tokay wine or good whisky, in proportion to age, can be tried. If vomiting persists, it is a good plan to give the stomach rest for about twenty-four hours, and meanwhile try rectal alimentation; for this purpose, milk thoroughly peptonized, yolk of egg with starch-water, beef-blood and starch-water, or barley-gruel, about 4 ounces for an enema, should be injected into the rectum, which must always be previously cleansed by an enema of soap-water, or glycerin and water, in the proportion of 4 ounces (124 grammes) to a pint ($\frac{1}{2}$ litre).

Hygienic Treatment.—There seems to be some relationship between hot weather and gastro-enteritis—sometimes called cholera infantum—at least, in the ratio of cause and effect. It is a well-known fact that an ocean trip induces constipation; and, it may be added, for this reason, a sail on salt water, even for short distances, will not alone give fresh air, but tend to constipate and invigorate our babies. Occasional spongings with alcohol and water, equal parts, or with bay-rum or vinegar and water, will brighten the children and check perspiration.

Baths.—The patients should be bathed daily, or even twice daily if greatly prostrated, with sea-salt water, made by adding a handful of salt to about 4 gallons of water at about 80° F. (26.66°

C.), at the end of the bath water of about 60° F. (15.55° C.) being poured over the whole body. Where the temperature of the body is very high and there is great restlessness and pulsating of the fontanelle, the author has frequently used a small rubber bag half-filled with cracked ice placed over the top of the head and kept *in situ* for a number of hours. Where there is great prostration, with pallor of skin, cold extremities, sometimes cyanosis, a hot mustard-bath may be given—about a handful of ground black mustard wrapped in some linen and suspended in water of about 100° F. (37.77° C.). Immerse the child's body, and gradually raise the temperature of the bath by adding boiling water until reaction sets in; then wrap the child in warm blankets.

Hypodermatics.—These are frequently resorted to. The writer has often given 10 drops of sulphuric ether to a child 1 year old. Brandy can also be advantageously given by injecting 10 to 20 drops into the abdomen. In extreme stupor Fischer sometimes gives 3 drops of aromatic spirits of ammonia with 10 drops of water.

Paul Demiéville,³⁷⁸_{Apr. 23} of Paris, reports the case of a child, 4½ months old, suffering from gastro-enteritis, in which a complete cure was obtained after a subcutaneous injection, upon both legs, of from 120 to 150 grammes (4 to 5 ounces) of a sterilized solution of common salt, of the strength of 6 per cent.

The operation is quite simple. The author provides himself with an irrigator, to which is attached a caoutchouc tube of a metre and a half in length, and a Dieulafoy needle, all this apparatus being disinfected by a bichloride solution of the strength of 1 to 1000, followed by a thorough washing with boiling water. The quantity of the liquid injected is proportionate to the total volume of both legs and feet; or else, in the same manner, the injection may be made under the skin of the belly. Before the introduction of the needle, the skin to be pierced must be thoroughly disinfected; then, after the injection, massage must be practiced, in order to enhance the absorption of the liquid. A difficulty in breathing is sometimes exhibited by the little patient; but, apart from this, the operation is not opposed by parents, who easily accept it, being convinced that it offers, in desperate cases, the most probable chances of success.

Robert Carothers,¹⁴¹_{Aug.} of Newport, Ky., states that, early in the

disease, when it is acute and the infant or young child is prostrated, has fever, vomits, and the stools are very frequent, large, and watery, with a very putrid or sour odor, he has had the happiest results from a very active purge,—preferably calomel,—followed by intestinal antiseptics. But, above all, he excludes, for twelve, twenty-four, or thirty-six hours, that which, if continued, would be adding fuel to the fire, namely, the food the child has been taking; in its place he substitutes a diet of whisky-toddy and beef-tea, or barley-water, which are non-fermentable, and upon which the child can be sustained until the trouble has considerably abated, when it can again be fed with caution.

In the chronic stage, when the disease has traveled down into the lower bowel, the stools are small, containing mucus tinged with blood, producing pain and tenesmus, and the prostration, vomiting, and fever have subsided, excellent results are obtained by Carothers from the use of arsenite of copper, given by the mouth and thrown into the bowel as an enema. He has seen cases of chronic or subacute dysentery, which have been running weeks, relieved thus in a few days. In the chronic, as well as the acute, stage, the importance of diet must not be lost sight of; but it will not be necessary to enforce so rigid a course. It has been his custom, if the case be an infant at the breast, to lengthen the intervals between nursing from three to five hours, and, in young children, to confine them, for a few days, to an exclusive milk diet, with intervals between the feeding of from four to six hours.

He has frequently used the arsenite of copper as an intestinal antiseptic in acute summer complaint with good results; but his experience tells us that it is especially indicated in chronic or subacute trouble located in the lower bowel.

H. M. Haskell, ⁹_{Sept. 10} of Palmer, Mich., seldom uses opium and the ordinary astringents, reserving them for the cases in which the discharges are so frequent and watery as to cause immediate danger. Creta preparata he does not use, on account of its taste, and finds that most cases do not need it. He bends his efforts toward restoring the discharges to their normal yellow, and finds that, in the vast majority of cases, the diarrhoea ceases of itself. If the milk curdles he stops it temporarily, if possible, or diminishes the quantity, using, sometimes, lime-water. For food he prefers bar-

ley-water, with white of egg and a little salt. He clears out the bowels with a mild laxative the first thing, in most cases; then he gives the following:—

R Pulv. acaciae, ʒij (7.776 grammes).
 Glycerini, ʒij (7.776 grammes).—M.
 Ft. sol., adde
 Bismuthi subcarb., ʒj (3.888 grammes).
 Aquæ, q. s. ad ʒij (62.207 grammes).—M.
 Sig.: A teaspoonful every one, two, or three hours, as needed.

This is sufficient for mild cases, and will soon cause the passages to become yellow or brown. The bismuth is, of course, an astringent; but it is far more. It checks the formation of gas, is antiseptic, is tonic to stomach and bowels, and analgesic and alterative. He greatly prefers the subcarbonate, as it is much lighter, free from grit, and more pleasant.

If the passages are too light-colored, the foregoing is not sufficient. It will then be necessary to add a little mercury in some form,—*e.g.*, $\frac{1}{2}$ or 1 grain (0.0324 or 0.0648 gramme) of calomel. In obstinate cases he has often seen this, in twenty-four hours, cause the passages to become normal. Having been a student at Bellevue, he was long deterred from using mercurials, since J. Lewis Smith was opposed to them. Used for a few hours, he believes that, in some cases, they will do what nothing else will. He prefers calomel, as it is tasteless; gray powder is more likely to cause vomiting.

If the passages are green, watery, and foul-smelling, a single small dose of calomel,—from $\frac{1}{4}$ to 1 grain (0.0162 to 0.0648 gramme),—with the bismuth mixture later on, will, as a rule, quickly restore the passages to their normal condition. Elixir of vitriol in barley-water is useful for thirst, for hunger, as an astringent, and as a tonic. When the stomach is mainly at fault he adds pepsin, etc. The hot-water bag is generally sufficient for the pain.

In very bad cases he stops all food and gives a decoction of logwood, with elixir of vitriol, for a number of hours, until the child is better. In cholera infantum he has used morphine, hypodermatically, with success. He regards acacia as very important on account of its local sedative effect on the gastro-intestinal mucous membrane; hence, he uses large doses. He has not averaged one death a year for several years.

Cyrus Graham, of St. Charles, Ky., ¹⁸⁶_{Sept.} reports the following interesting case of cholera infantum: "I was called between the hours of 11 and 12 o'clock P.M. Found patient, Robert W., aged 2 years, very delicate child; was first seized with violent vomiting and purging; first vomited partially digested food, then watery fluid and considerable bile. The stools were profuse, very offensive, and their odor rather musty; eyes sunken, features pinched, abdomen flaccid and clammy to the touch, tongue slightly coated; raging thirst, but when given water violent emesis immediately ensued; pulse very rapid; temperature 104° F. (40° C.).

"Gave mild chloride of mercury, gr. $\frac{1}{20}$ (0.0032 gramme), every thirty minutes, and 1 teaspoonful of the following prescription every hour till 3 teaspoonfuls had been given, and emesis ceased; after that 1 teaspoonful every four hours:—

R Phenol, 3 minims (0.19 gramme).
 Bismuthi subnitrat, 2 drachms (7.77 grammes)
 Pulv. cretæ, 1½ ounces (46.65 grammes).
 Aquæ menthæ pip., . . q. s. ad 3 ounces (93.31 grammes).—M.

"Had cloths wrung out in hot water and vinegar placed on the abdomen and changed every thirty minutes till emesis and purging ceased; then continued at longer intervals; and gave cracked ice to appease thirst and cool the stomach. Patient became quiet about 2 o'clock A.M. and dropped into a deep sleep and rested well for several hours, though very hard to arouse. Temperature subnormal; bowels had acted twice; odor not so offensive.

"About 9 o'clock A.M. commenced administering the following:—

R Zinci sulpho. carb., 4 grains (0.25 gramme).
 Bismuth. subnit., 24 grains (1.55 grammes).
 M. ft. cht. no. xij.
 Sig.: One powder every two hours.

"Kept up the hot cloths; gave 1 teaspoonful of Catawba wine every three hours. Patient very listless and dull all day; stools ceased to become feculent; took some nourishment. Several days after the attack, patient badly emaciated; eyes sunken and with dark rings around them. Temperature somewhat higher; gave bath to control hyperpyrexia and wine to stimulate. At 3 o'clock patient suddenly rallied (no fever, pulse normal), called for something to eat; gave beef-tea, dry bread, etc. Rapid recovery."

Mikhnevitch, ⁵³⁰_{No. 6, June} 2 having tried the salicylate of bismuth in 50

cases of diarrhœa in infants under 2 years of age, reports that, of the number, only 2 died (a boy of 8 months with pelvic suppuration consecutive to intractable colitis; and an infant of 5 months, born prematurely and exceedingly sickly since its birth). The following formula is recommended:—

R Bismuthi salicylici,	. . .	24 grains	(1.55 grammes).
Gummi arabici,	. . .	1 drachm	(3.888 grammes).
Sacch. albi,	. . .	1½ drachms	(5.83 grammes).
Terendo adde			
Aq. dest.,	. . .	2 ounces	(62.207 grammes).
Fiat lac, tum adde			
Aq. dest.,	. . .	4 ounces	(124.414 grammes).

M. Sig.: The bottle to be kept in cold water or ice, and to be shaken well before use. One or two teaspoonfuls to be given from three to six times daily.

Each teaspoonful of the mixture contains about $\frac{1}{2}$ grain (0.0324 gramme) of the salicylate, which constitutes a normal dose (three or four times daily) for an infant of from 6 to 8 months old. In cases of offensive diarrhœa the administration should be preceded by a dose of castor-oil. The bismuth salt should be given regularly until the diarrhœa has completely subsided. It must be kept in mind, however, that in large doses the remedy is apt to induce perspiration with consecutive weakness (especially in exhausted children); hence a corresponding reduction of the dose may become necessary. In acute cases the remedy is useless, but in all of a week's standing or longer its effects are said to be excellent.

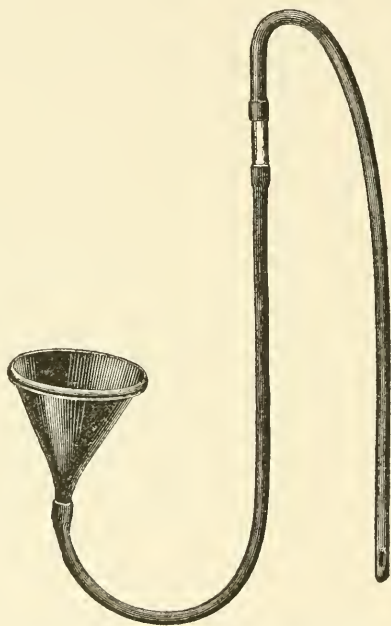
Henry E. Tulby, of the New York Infant Asylum,²²⁴ gives the following valuable sketch of the apparatus used in stomach-washing (lavage) of infants:—

The apparatus used in stomach-washing consists of a soft-rubber catheter, No. 13, American scale, about twelve inches in length (that of Whitall and Tatum is perhaps the best, not being as flexible as Tiemann's, which is used ordinarily). This is attached by a bit of glass tubing two or three inches long, by means of which the contents of the tube can be noted as it flows through; and by a rubber tube to a glass or hard-rubber funnel holding from one to three fluidounces. (See page 26.)

Plain lukewarm water, previously boiled, is the only material which should be used, generally not more than one pint being required to wash out the stomach thoroughly.

The child is seated upright in the nurse's lap, its arms being secured under a rubber sheet, with head resting on right arm of nurse and inclined slightly forward. With the left forefinger the child's tongue is depressed, and the tube passed backward into the pharynx, advantage being taken of the child's gagging, which will occur from titillation of the pharynx, to pass the tube rapidly into the stomach. In most cases no oil or vaselin is needed on the tube; it should simply be wet before its introduction.

There is often some gas in the stomach, and, if water is



APPARATUS FOR LAVAGE AND GAVAGE.
(*American Practitioner and News.*)

poured in the funnel immediately upon the descent of the tube, it is prevented from flowing into the stomach by gas in the tube, and not by an obstruction at the eye of the catheter, as one might imagine, a glance at the glass tubing sufficing to show whether the tube is filled or not. This is obviated by elevating the funnel as high as possible, perhaps for half a minute, to allow the gas to escape. The funnel is then depressed below the level of the stomach to allow its fluid contents to siphon out, after which the water is allowed to run in, one or two funnelfuls, this being immediately siphoned out in the same manner.

There may be lumps of curds which, at first, are too large to pass through the catheter; these can often be broken up and dissolved by again and again letting water in and out until they pass readily through the tube; or, if this cannot be accomplished, the child may be made to vomit alongside the tube by overdistending the stomach with water, thus bringing up, oftentimes, masses of curds leathery to the feel, and thick, tenacious mucus which would have taken repeated washings to disintegrate,—if, indeed, that could have been accomplished at all.

The stomach of a healthy nursing infant, for the first few months of life, is generally empty two hours after feeding,—that of an artificially fed infant perhaps a little longer, say two and one-half hours,—but in cases of indigestion curds are sometimes washed out four or five, and even eight, hours after feeding, the period of stomach digestion varying with the character of the milk and the age and health of the patient.

Should there be present considerable prostration and urgent thirst, as is often the case in acute processes, one or two ounces of water left in the stomach will relieve and quiet them, and the water will frequently not be vomited as it might be if given by the mouth, as has been shown in a series of cases of obstinate vomiting treated by gavage (Kerley ⁵¹_{Feb.}) in this institution during the past year.

The *diet*, after stomach-washing and its method of administration, is very important. *No food* should be given at all for at least two hours after the washing, and then only the blandest and most easily digested.

It has been the custom in this institution, if the child is artificially fed, to put it on malted milk for twenty-four or thirty-six hours after the irrigation, not giving more than half an ounce at the first feeding.

If a nursing infant, and breast-milk is vomited after the stomach is washed, malted milk is tried for twenty-four hours in small amounts and the breast-milk then resumed.

Epstein, after washing out the stomach, puts children on albumen-water (dissolve whites of two eggs in two pints of water, first beaten up in water, then filtered) for twenty-four or thirty-six hours, and they are allowed gradually to return to the breast.

In the past two years, in the New York Infant Asylum, there

have been fully fifteen hundred stomachs washed, and in no case has any evil resulted or any contra-indication been noted. It is very easily performed, though it seems like an operation of magnitude to those unfamiliar with its technique.

GROWTH AND AGE.

By CHARLES SEDGWICK MINOT, M.D.,

BOSTON.

G. Carlier ²¹⁶³_{V.4, No.3} has published in an important memoir his researches upon growth. These researches are based upon 10,497 observations made in the military schools of Montreuil and St. Hippolyte, on subjects from 13 to 18 years, including the weight and the measurements of figure and thoracic circumference. The favorable influence exerted by the excellent sanitary condition of the military preparatory schools is shown in the superior physique of their pupils, as compared with that of the children of the troops who have not been members of such schools. The effect of favorable surroundings is first seen in the weight, then in the perimeter; the development of the figure, which begins in the first term, does not attain a maximum until the fourth. The gymnastic exercises seem to affect principally the perimeter, the general influence of the surroundings and diet affecting the weight and the figure.

The author demonstrates, following Buffon and Tourdes, the influence of the seasons upon the development of the body, growth being uniformly greater during the summer seasons than during the winter. Weight reaches its maximum in the winter. Carlier's observations show that the seasons have also an influence upon the perimeter, which increases, as a general rule, more rapidly in the warm season than in the cold. The growth of the figure and the increase in weight have not the regularity shown in the tables of Quételet. From 13 to 15 years, growth is the more marked; from 15 to 16, the perimeter and figure; a year later, the weight. The period of rapid growth is followed by a period of slight growth. The proportion between the weight and the figure increases with age.

The influence of febrile diseases upon the development of the figure was not important. Schmid-Monnard ³⁶⁶_{Feb. 18} has published an excellent paper on the growth of healthy children, based on statistics obtained from nearly three thousand children from birth up to

(M-1)

30 months. The following table embodies his chief results; they give averages, the weight in kilogrammes, the lengths, the circumferences of the chest and of the head in centimetres; each average is based on from six to eight hundred observations:—

GROWTH OF INFANTS, ACCORDING TO SCHMID-MONNARD.

MONTH.	BOYS.				GIRLS.			
	A. Weight.	B. Length.	C. Chest.	D. Head.	K. Weight.	L. Length.	M. Chest.	N. Head.
0	...	...	31.6	34.1	...	...	31.1	33.1
1	3,451	50.6	31.8	34.8	3,219	50.1	31.4	33.6
2	4,108	54.1	35.0	37.4	4,002	53.8	34.5	36.2
3	4,840	55.6	36.6	38.8	4,792	57.5	36.2	37.3
4	5,670	59.9	39.0	40.2	5,409	59.3	37.5	39.1
5	5,868	60.5	37.7	41.2	5,866	61.0	38.8	40.0
6	6,802	63.0	40.3	42.3	6,426	62.2	38.9	41.2
7	7,017	64.4	40.2	42.8	6,855	64.0	39.8	42.1
8	7,152	66.1	42.3	43.4	6,936	64.9	39.8	42.7
9	7,579	67.4	41.5	44.5	7,396	66.9	40.4	43.2
10	8,312	65.9	42.2	44.5	7,527	67.0	41.0	43.9
11	8,412	69.6	42.6	44.7	7,588	67.0	41.0	43.9
12	8,588	71.0	43.2	45.7	7,756	68.1	41.1	44.4
13	8,479	70.7	43.0	45.4	8,277	71.8	42.3	44.8
14	8,897	72.2	43.7	46.2	8,350	70.9	42.3	45.1
15	8,825	73.0	43.7	46.2	8,200	70.5	42.3	45.2
16	9,414	74.1	44.0	46.7	8,807	72.5	43.3	45.9
17	9,810	76.0	45.0	46.5	9,164	73.8	43.6	46.3
18	9,650	74.6	45.0	46.9	9,219	74.1	44.2	45.4
19	9,818	76.1	45.2	47.2	9,247	73.8	44.1	46.0
20	9,973	77.5	46.1	46.9	9,084	74.6	43.5	45.7
21	9,911	75.7	44.9	46.6	9,261	75.2	43.3	46.0
22	10,334	78.2	45.4	48.3	9,887	77.7	45.2	46.3
23	10,229	78.1	45.0	47.9	9,700	77.0	45.1	46.4
24	10,547	78.8	45.5	48.0	10,106	79.5	45.5	46.5
25	10,542	80.0	46.9	47.8	10,058	79.2	45.0	46.5
26	11,133	81.6	47.1	48.6	10,336	80.4	45.9	46.9
27	11,100	80.0	47.2	48.5	10,508	80.0	45.7	46.7
28	11,000	82.0	46.0	49.0	10,150	80.0	44.8	47.1
29	11,150	82.5	46.3	48.3	11,100	83.5	46.1	47.7
30	11,407	83.7	47.1	48.9	10,829	83.4	47.1	46.8

The data were collected chiefly in Frankfurt-on-the-Main by Lorey, partly in Halle by the author, and are all taken from healthy children. The growth of an individual is only very rarely regular, but is usually fluctuating; periods of retardation are followed by periods of acceleration, by which the lost growth is made up and the average attained. This is true both of children raised at the breast and of those raised by the bottle, but in the latter the variations are greater. Besides the accidental fluctuations there are several regular variations, which coincide with the periods of teething.

Stage ³⁶⁶_{N.F., 20, p. 425} maintained that teething did not affect growth. Schmid-Monnard, however, is able to demonstrate the contrary. Thus, if the monthly increments are plotted as ordinates, the months as abscissæ, there will be found minimal increments at every period of dentition,—namely, at 5, 8, 13, 15, 18, 21, and 28 months,—as is graphically shown by the author in the curve on page 333. As regards the size of the head and the chest, he found the following average circumferences:—

	At Birth.		21 Months.		29 Months.		39 Months.	
	Chest.	Head.	Chest.	Head.	Chest.	Head.	Chest.	Head.
Boys, . .	31.6	34.1	44.9	46.6	46.3	43.3	47.1	48.9
Girls, . .	31.1	33.1	43.3	46.0	46.1	47.7	47.1	46.8

It is, therefore, not until the thirtieth month, and even then only in girls, that the girth of the chest equals that of the head. It is noteworthy that the maximum increase of length, and of the head and chest, precedes the maximum increase of weight. As regards the weight at birth, the children of older multiparæ are heavier than those of younger primiparæ; but, if older mothers be compared together, the primiparæ are found to have heavier children than multiparæ of the same age, and than younger primiparæ. This important fact is new and is clearly demonstrated by the author. Malling-Hansen has maintained that there are periodical, seasonal variations in the growth of children, but no evidence of any such variations in infants could be obtained.

T. N. Kelynack, ⁹⁰_{Feb.} having failed to find any accurate information as to the normal temperature of old age, made a very careful study of three cases, temperature taken during health twice daily, in the rectum and axilla, for two or three months. The continuous records tend to prove that the normal or healthy senile temperature, as registered in both rectum and axilla, is very distinctly below that of healthy children and adults; that the rectal temperature is higher in old age by from $\frac{1}{5}^{\circ}$ to 1° F.; and that this normal low temperature must be fully considered before forming any opinion as to the clinical importance of temperatures met with in the various diseases occurring in old persons.

As a remarkable coincidence may be noted that, besides the French chemist, Chevreuil, who died at 103 years, there is another centenarian chemist, Ignaz Vonberg, still living; he was born January 17, 1791, and is Professor at the University of Kieff. ²_{Dec. 20, '91}

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PARIS.

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 1043. Archives provinciales de chirurgie.
 1044. Revue du Dispensaire du Louvre, Paris.
 1045. Pharmaceutische Presse.
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 1047. Pharmaceutische Centralblatt.
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 1062. L'Echo des Villes d'eaux.
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 1064. The Corpusele, Chicago.
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 1082. Budapester Hygienischer Zeitung.
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